J Rehabil Med 2011; 43: 965–968

SPECIAL REPORT

DEVELOPING POST-DISASTER PHYSICAL REHABILITATION: ROLE OF THE WORLD HEALTH ORGANIZATION LIAISON SUB-COMMITTEE ON REHABILITATION DISASTER RELIEF OF THE INTERNATIONAL SOCIETY OF PHYSICAL AND REHABILITATION MEDICINE

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This special report presents the role of the World Health Organization (WHO) Liaison Sub-Committee on Rehabilitation Disaster Relief (CRDR) of the International Society of Physical and Rehabilitation Medicine (ISPRM) in developing an enhanced physical rehabilitation relief response to large-scale natural disasters. The CRDR has stated that disaster rehabilitation is an emerging subspecialty within physical and rehabilitation medicine (PRM). In reviewing the existing literature it was found that large natural disasters result in many survivors with disabling impairments, that these survivors may have better clinical outcomes when they are treated by PRM physicians and teams of rehabilitation professionals, that the delivery of these rehabilitation services to disaster sites is complicated, and that their absence can result in significant negative consequences for individuals, communities and society. To advance its agenda, the CRDR sponsored an inaugural Symposium on Rehabilitation Disaster Relief as a concurrent scientific session at the 2011 ISPRM 6th World Congress in San Juan, Puerto Rico. The symposium included oral and poster presentations on a range of relevant topics and concluded with an international non-governmental organization panel discussion that addressed the critical question "How can rehabilitation actors coordinate better in disaster?" Building upon the symposium, the CRDR is developing a disaster rehabilitation evidence-base, which will inform and educate the global professional rehabilitation community about needs and best practices in disaster rehabilitation. The *Journal of Rehabilitation Medicine* (JRM) has commissioned this special report to announce a series of papers on disaster rehabilitation from the symposium's scientific programme. Authors are invited to submit papers on the topic for inclusion in this special series. JRM also encourages expert commentary in the form of Letters to the Editor.

Key words: disability; disaster medicine; disaster rehabilitation; humanitarian assistance; rehabilitation disaster relief.

J Rehabil Med 2011; 43: 965–968

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Submitted August 18, 2011; accepted September 13, 2011

INTRODUCTION

This special report presents the role of the World Health Organization (WHO) Liaison Sub-Committee on Rehabilitation Disaster Relief (CRDR) of the International Society of Physical and Rehabilitation Medicine (ISPRM) in developing an enhanced physical rehabilitation relief response to large-scale natural disasters. To advance its agenda, the CRDR sponsored an inaugural Symposium on Rehabilitation Disaster Relief as a concurrent scientific session at the 2011 ISPRM 6th World Congress in San Juan, Puerto Rico. The symposium included oral and poster presentations on a range of relevant topics and concluded with an international non-governmental organization panel discussion, which addressed the critical question "How can rehabilitation actors coordinate better in disaster?"

Based on this symposium, the *Journal of Rehabilitation Medicine* (JRM) has commissioned this special report to provide background on the field of disaster rehabilitation and the role of the ISPRM and CRDR in developing this emerging discipline. Furthermore, this report announces a special series of articles on disaster rehabilitation, which will increase the discipline's evidence base for informing policy and practice of the global professional rehabilitation community. Symposium contributors were invited to submit papers for consideration for inclusion in this historic series on the topic of disaster rehabilitation. In addition, interested authors are invited to submit papers on this topic and the JRM also welcomes expert commentaries in the form of Letters to the Editor.

Such identification of needs and best practice, and development of the evidence-base for disaster rehabilitation supports the recommendation of the newly launched WHO *World Report on Disability* (WRD) that trauma care and rehabilitation services be provided in humanitarian crises (1, 2).

BACKGROUND ON DISASTER REHABILITATION

Large-scale natural disasters result in significant numbers of disabling impairments, including spinal cord injuries (SCI),

 doi: 10.2340/16501977-0890

 ISSN 1650-1977

traumatic brain injuries (TBI), limb amputations, long bone fractures and peripheral nerve injuries. Moreover, disasters generally occur in low-resourced regions where disaster response plans do not include strategies for physical rehabilitation or specifically account for persons with new or pre-existing disabilities. The limited pre-disaster health and rehabilitation service infrastructure is quickly overwhelmed, necessitating a multidisciplinary, international humanitarian response. Notwithstanding the lack of host rehabilitation resources, international rehabilitation disaster relief efforts are extremely challenging (3).

As an expert in disability and functioning, and with training in the diagnosis and treatment of general health conditions, the physical and rehabilitation medicine (PRM) physician can perform a critical role in integrating the field medical team's rehabilitation efforts following a disaster. If serving with a team of rehabilitation professionals, the PRM physician can coordinate member roles depending on the context of the victims' rehabilitation needs and the post-disaster environment. Rehabilitation professionals can participate in victim triage, be consulted peri-operatively, and provide postoperative care. The rehabilitation professional's role changes to reflect evolving clinical mission requirements, transitioning from emergency surgical support in established facilities to less acute rehabilitative and medical care of injury complications and co-morbidities in the community. PRM personnel can participate in mobile community services, for example, providing post-operative follow-up, as well as identifying and treating persons with disabling injuries who did not present to hospital facilities. PRM personnel can also work with local healthcare providers, patients, families, and community volunteers in support of community-based rehabilitation programming efforts, such as the prescription and use of assistive devices, mobility aids and adaptive technologies (4). Therapies become increasingly directed toward conservation of body function, activity and participation levels and, when appropriate, palliation.

Expatriate rehabilitation responders should routinely provide targeted training to fellow team members as well as to local providers in various settings across the continuum of rehabilitative care. Furthermore, responders can help develop host rehabilitation service provision capacity by supporting establishment of structured training programmes. They can also coordinate, with host rehabilitation service providers, disaster managers and health officials, the development of additional rehabilitation infrastructure programming for long- term care of disaster victims, as well as planning for persons with disabilities and special needs in future disasters.

PRM involvement has been shown to have positive rehabilitative benefits, as demonstrated following the 2005 earthquake in Pakistan, where patients under the care of PRM physicians had reduced lengths of hospital stay, fewer complications and better clinical outcomes than patients in centres with no PRM supervision (3). Neglect of indicated rehabilitation interventions for disabling injuries during the emergency response to a natural disaster further strains the weakened health system response by extending hospital stays and consuming scarce inpatient resources. Missed injury-specific, critical therapeutic windows result in permanent, suboptimal functional outcomes with significant, long-term negative consequences for the individual, community and society (3).

Providing an effective rehabilitation response following a natural disaster is significantly complicated by the prior absence, disruption or destruction of host rehabilitation infrastructure. Moreover, effective mobilization and deployment of qualified providers and appropriate medical material depends upon a degree of coordination between the host and responding organizations, which is uncommonly achieved. Classification of disability issues as a "cross-cutting issue" within the humanitarian response framework places these issues further at risk for inefficient management in disaster. An austere operating environment typically complicates field coordination and injury assessment efforts even further. These immediate, post-disaster challenges also complicate the transition in rehabilitation service delivery to the acute, post-acute and long-term response phases.

ISPRM WHO LIAISON SUB-COMMITTEE ON REHABILITATION DISASTER RELIEF

The ISPRM CRDR was formed (in September 2010 during the 8th Mediterranean Congress of PRM; Limassol, Cyprus) to help address the significant challenge of providing rehabilitation relief in large-scale natural disasters. The CRDR is 1 of 5 WHO liaison sub-committees that administers the ISPRM external policy agenda with WHO and other professional rehabilitation organizations in official relations with WHO (5, 6). Representing all WHO regions, CRDR membership primarily includes PRM physicians, in addition to other public health as well as medical and rehabilitation professionals; of which many have experience in disaster rehabilitation. The CRDR seeks to "effectively focus the resources of ISPRM and its membership on optimizing the health, functioning and quality of life of persons who sustain injuries or impairments due to a large-scale natural disaster" (5). As defined by the WHO's International Classification of Functioning, Disability, and Health (ICF), "functioning" comprises health domains such as body functions and structures as well as activity and participation in the persons' environment (7).

Strategic goals developed by the CRDR to achieve its mission include:

- providing post-disaster rehabilitative services, including an emergency rapid response team capability;
- facilitating coordination between various disaster responders, including humanitarian relief and governmental organizations, disabled persons organizations and local providers over the disaster response;
- providing rehabilitation education and training to disaster responders, host personnel, patients and caregivers;
- conducting scientific disaster rehabilitation original research and reviews, including on the epidemiology of disability following disaster;
- influencing political opinion on the social utility and cost-effectiveness of PRM over the disaster response; and

- mobilizing financial resources to support emergency responses and sustainable rehabilitation services in disaster-affected areas.

CRDR RESEARCH AGENDA AND SYMPOSIUM ON REHABILITATION DISASTER RELIEF

The CRDR's strategic emphasis on disaster rehabilitation research supports the ISPRM's policy on enhancing research capacity (8) and is exemplified by the recent publication of a secondary data analysis on the MICRODIS project (http://www.microdis-eu.be/). This contribution examines the role of health-related rehabilitation in disaster relief as it relates to the epidemiology of disaster and disability, the assessment and measurement of disability, and the impact on health and rehabilitation systems (3). The CRDR is currently preparing systematic literature reviews on types of injuries in natural disasters.

Sponsorship of the recent Symposium on Rehabilitation Disaster Relief demonstrated the committee's commitment to advancing the global disaster rehabilitation research agenda. CRDR members, as well as other ISPRM and rehabilitation disaster response professionals, presented their research to an openly receptive forum. Convening this symposium as a concurrent session of the ISPRM world congress also allowed other interested rehabilitation professionals to gain insight into rehabilitation disaster relief. Abstracts were invited on the following focus areas (http://isprm.org/?CategoryID=361):

- Epidemiology of disability in natural disaster (including persons with pre-existing disabilities.
- Needs assessment methods for persons with disabling conditions in natural disaster.
- Challenges in rehabilitation service provision in general and specific rehabilitation strategies for disaster victims.
- Clinical effectiveness and cost-effectiveness of rehabilitation interventions in natural disaster.
- Training of disaster rehabilitation responders.

Comprising a wide range of topics and presenters, the symposium scientific session reflected the spectrum of disaster rehabilitation relief (Appendix I). The Haiti earthquake and SCI were most commonly presented. Recent large-scale disasters in Pakistan, China and Japan were also addressed. The panel discussion that followed featured experienced rehabilitation international non-governmental organizations and professional societies, again fostering intense discussion and debate on the critical question "How can rehabilitation actors coordinate better in disaster?" Some of the issues raised during the symposium were further addressed during the CRDR's subsequent open committee session.

CONCLUSION AND FUTURE DIRECTION

Sharing information via original research will further characterize the spectrum of rehabilitation disaster response, thereby guiding the development of the discipline's policy and practice. In addition to building the disaster rehabilitation evidence base and shaping practice, increasing the awareness of a larger and broader professional rehabilitation audience will lead to greater involvement of rehabilitation and other interested professionals. To that end, JRM extends a special invitation to the WHO Disability and Rehabilitation (DAR) team and members of its Professional Organizations Network (including the World Confederation for Physical Therapy (WCPT), the World Federation of Occupational Therapists (WFOT) and the International Society of Prosthetics and Orthotics (ISPO)) to submit to the JRM special series.

This JRM special series on disaster rehabilitation relief will also assist the CRDR in further defining its internal scientific research and external humanitarian response agendas in support of respective, evolving ISPRM agendas (5, 8). The CRDR looks forward to developing these issues further by presenting on the scientific programme of the 2012 American Academy of Physical Medicine & Rehabilitation (AAPM&R) Annual Assembly (coincident with the ISPRM mid-term meeting) and sponsoring an international summit on disaster rehabilitation relief at the 2013 ISPRM 7th World Congress in Beijing, China (http://www.isprm2013.org/en/page.asp?pageid=15.html).

CRDR contributions to the development of the research base of the emerging discipline of disaster rehabilitation are intended to increase the rehabilitation perspective and its effectiveness in the humanitarian disaster response, thereby improving the health and functioning of individuals and communities impacted by natural disasters. "Today's investments in rehabilitation research are investments in improved rehabilitation care in the future." (8). With global health agendas advancing rapidly, disaster rehabilitation medicine cannot be left behind. Active participation in, and contribution to, research and universal standard-setting facilitated by this JRM special series will ensure a seat at the table in future global policy and practice decisions.

ACKNOWLEDGEMENTS

The CRDR gratefully acknowledges the 2011 ISPRM 6th World Congress Organizing, Scientific and International Committees; namely, Drs Veronica Rodriguez de la Cruz, William Micheo and Walter Frontera. The Puerto Rico Association of Physical Medicine and Rehabilitation and the University of Puerto Rico School of Medicine are also recognized. Appreciation is extended to presenters at the ISPRM CRDR Symposium on Rehabilitation Disaster Relief, panelists and their respective sponsoring organizations, and especially to panel co-chairs John Melvin (USA), Per von Groote (Switzerland) and Gunnar Grimby (Sweden). The authors also sincerely thank Gunnar Grimby, JRM Editor, and the JRM Editorial Office for their instrumental vision and dedicated effort in supporting this special journal series on disaster rehabilitation.

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APPENDIX I. Programme of the International Society of Physical and Rehabilitation Medicine (ISPRM) Symposium on Rehabilitation Disaster Relief; ISPRM 6th World Congress, 13 June 2011, San Juan, Puerto Rico

Scientific session

Chairs: Jianan Li (China), Andrew Haig (USA), Jan Reinhardt (Switzerland)

Introduction. Jianan Li/Jan Reinhardt

Medical rehabilitation after disasters: why, when, how? Farooq Rathore (Pakistan)

A new rehabilitation model for major disasters in rural areas based on experiences from the Sichuan earthquake in China. Xia Zhang (China)

Haiti – from a post-earthquake visit of 1 month to a collaboration of 5 years: building a rehabilitation centre for SCI patients. Sibille Buehlmann (Switzerland)

Faced with the Great East Japan earthquake disaster: what can the Japanese Association of Rehabilitation Medicine (JARM) do? Meigen Liu (Japan)

Rehabilitation needs in persons with spinal cord injury in post-earthquake Haiti. Alexandra Rauch (Switzerland)

Quality of life and social function of earthquake survivors with spinal cord injury 1 year after returning to the community. Xiaorong Hu (China)

Training of local rehabilitation services providers: a milestone towards effectiveness and long-term sustainability of post-disaster interventions. Didier Demey (Belgium)

Barriers and opportunities to the implementation of a comprehensive rehabilitation strategy in post-earthquake Haiti. Andree LeRoy (USA), Cheri Blauwet (USA)

Spinal cord injury rehabilitation in post-earthquake Haiti: early responses, critical successes and longer term challenges. Colleen O'Connell (Canada)

Comprehensive rehabilitation of amputation patients after crush injuries sustained during the Wenchuan earthquake. Hongchen He (China)

Rehabilitation disaster relief: value of a regional large rehabilitation institution after the Sichuan earthquake. Zengchun Sun (China)

Challenges in rehabilitation nursing in natural disasters in Third World countries. Christa Schwager (Switzerland)

Comparison of patient education in rehabilitation of spinal cord injuries in Switzerland and low-resourced countries. Karin Roth (Switzerland)

Surgical and rehabilitation interventions in response to the Haiti earthquake. Antony Duttine (France), James Gosney (USA)

Panel discussion – *How can rehabilitation actors coordinate better in disaster?*

Chairs: John Melvin (USA), Per von Groote (Switzerland), Gunnar Grimby (Sweden)

Panelists:

Antony Duttine, BSc, PT, Rehabilitation Advocacy Officer, Handicap International – Federation (HI-F)

Peter Poetsma, MSc, P-O, Regional Director – Latin America, International Committee of the Red Cross – Special Fund for the Disabled (ICRC-SFD)

Carolina Schiappacasse, MD, President, Argentina ISPO National Member Society; Vice-President (ex officio), International Society for Prosthetics and Orthotics (ISPO),

Colleen O'Connell, MD, International Spinal Cord Society (ISCoS) Disaster Relief Committee

Jianan Li, MD, President of the Chinese Society for PRM; Vice-President ISPRM, ISPRM Rehabilitation Disaster Relief Committee