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Organization

Strengthening
rehabilitation in
health emergency
preparedness,
readiness, response
and resilience

Policy brief

Rehabilitation
2030



Strengthening rehabilitation in health emergency preparedness, readiness, response and resilience

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KEY MESSAGES



Health emergencies often create enormous surges in rehabilitation needs, while simultaneously disrupting existing rehabilitation services.



Access to rehabilitation is a human right, and rehabilitation, which should begin as a component of acute care, is a key determinant of patient outcomes.



Health services are more resilient and emergency responses are more efficient and effective when rehabilitation is incorporated into preparedness, readiness and early response.



Many humanitarian guidelines and global conventions, including a 2023 World Health Assembly Resolution, mandate rehabilitation as an essential health service in emergencies, that must be integrated into preparedness and response.



However, few countries systematically integrate rehabilitation into emergency preparedness, and it is often late to be included in responses, or completely neglected.



Policy-makers, health emergency managers and rehabilitation leaders must ensure that rehabilitation is an integral component of all-hazard health emergency preparedness and response.



Countries most at risk of health emergencies often have rehabilitation services that are weak and poorly integrated into the health system. A twin-track approach that combines overall rehabilitation health systems strengthening with specific preparedness measures, outlined in this document, is recommended.

INTRODUCTION

Many health emergencies create significant surges in urgent rehabilitation needs, and these needs are increasing. In 2020, the United Nations described “a new era of conflict and violence” (1), with a growing number of active conflicts and associated resurgence in deaths. The global incidence of injuries due to disasters is also increasing (2) and between 2010 and 2019, the number of people injured (6.7 million) was more than four times those killed (3). Alongside this, the threat of infectious disease outbreaks and global pandemics persists, with a growing awareness of the critical role of rehabilitation in this area.



Fig. 1. Gaza, a patient with a hand amputation receives treatment in the community.
© Mary Jane Cole

Immediate rehabilitation is required for those with trauma or critical illness resulting from health emergencies, beginning as part of acute care. Rehabilitation reduces disability (4), increases survival (5), prevents secondary complications, accelerates and optimizes recovery, and improves quality of life (6). Rehabilitation needs also persist beyond the immediate response phase of any emergency, and there is a need to quickly plan and build capacity to address an increase in long-term needs.

As well as creating a surge in needs, health emergencies also simultaneously and disproportionately (7) disrupt existing rehabilitation services, which are often already poorly resourced and not well integrated into the health system (8).

Unfortunately, rehabilitation responses are often hindered by low prioritization of rehabilitation and a lack of integration into the health response. Too often, rehabilitation is an afterthought. A major contributing factor to this is that rehabilitation needs are rarely considered as part of preparedness planning.

Health emergencies require a rapid and coordinated rehabilitation surge response to meet increased needs, while also maintaining essential rehabilitation services. To achieve this, rehabilitation needs must be integrated into all hazard health emergency preparedness, readiness, response and resilience (HEPR). This policy brief outlines the evidence for rehabilitation in emergencies, reviews challenges from recent responses, and utilizes available evidence to outline the key steps to be taken to integrate rehabilitation into HEPR.



Fig. 2. Ataqullah, Afghanistan.
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DEFINING REHABILITATION IN EMERGENCIES:

WHAT

is rehabilitation in health emergencies?

Rehabilitation is defined by WHO as “interventions to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment” (4). Rehabilitation is multidisciplinary, and often includes the provision of assistive products. Access to rehabilitation is a human right (10).

An **emergency** is “a situation impacting the lives and well-being of a large number of people or a significant percentage of a population and requiring substantial multisectoral assistance” (11).

Rehabilitation in emergencies is therefore the delivery of essential rehabilitation services in an emergency in order to prevent complications, support recovery, optimize functioning and reduce disability, often in response to a specific surge in needs.

WHO

needs rehabilitation in health emergencies?

Affected people may need urgent rehabilitation as a result of trauma or disease. Others, including people who are displaced and those with pre-existing health conditions, need sustained access to essential rehabilitation services (including assistive products) to protect them from harm and to help ensure they are able to access other essential services.



Fig. 3. Burns patient in Gaza, 2014.
© Pete Skelton

WHERE

should rehabilitation be integrated into health emergencies?

All countries should integrate rehabilitation into emergency management – no country is risk free. However, countries with the highest vulnerability to emergencies often have the weakest rehabilitation services, underlining the importance of preparedness to maximize the effectiveness of already limited resources. Preparedness is required at the national, subnational and community level (12) and within health systems, services and facilities.

WHEN

should rehabilitation be integrated into health emergencies?

Rehabilitation is needed from the onset of any response. To ensure this, rehabilitation should be integrated into emergency risk management plans including preparedness, resilience, readiness, response and recovery planning and activities to ensure early and ongoing delivery of rehabilitation services across primary, secondary and tertiary care.

When an emergency occurs, a rehabilitation response should start immediately, and continue as long as required (10). The common misconception that rehabilitation comes “later” or at the end of a continuum of care has been exacerbated by the use of the term “rehabilitation” in disaster risk reduction to describe a phase of management that follows response (13). The term is further confused by its dual use in reference to the restoration of services or facilities (14). Any delay in the delivery of rehabilitation places patients at risk of complications, suboptimal outcomes, or getting lost to follow up altogether.

Rehabilitation should be integrated across the HEPR Continuum

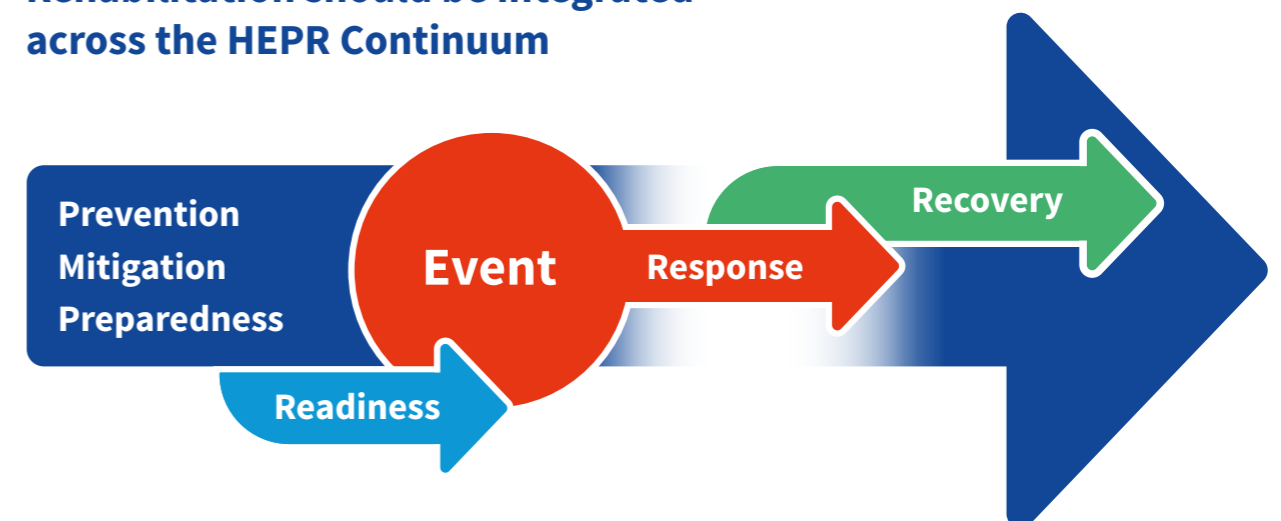


Fig. 4. The emergency risk management continuum.

THE BENEFITS OF REHABILITATION IN EMERGENCIES

Rehabilitation is an **essential health service** in emergencies (6, 15–17).

It is a **key determinant of patient outcomes** in conflict and disasters (18, 19), where it can increase survival (5), enhance quality of life (5), prevent complications (20) and ensure the best possible health and functioning of those affected (21, 22). Without rehabilitation, medical and surgical interventions may be compromised (5) and many patients will not achieve their optimal outcome (19). This can have a devastating impact not only on individuals, but also on their families and communities (23).

Rehabilitation makes emergency health services more efficient and effective (6) – it reduces length of stay in hospitals, decreases re-admissions, and prevents costly and potentially fatal complications (24). Significantly, the cost effectiveness of many rehabilitation interventions means that they can be feasibly delivered even in resource-constrained settings, in which health emergencies most commonly occur (8, 23).

Rehabilitation provides other long-term benefits – while research from emergencies is limited (25–27), significant evidence on the effectiveness of rehabilitation from more stable settings (26) shows it improves participation and economic productivity (28) making it an essential part of emergency recovery and even peacebuilding.



Fig.5. Handicap International.
© WHO / Francisco Guerrero

WHO CATEGORIZATION OF HAZARDS

GENERIC GROUPS	1. NATURAL					2. HUMAN-INDUCED		3. ENVIRONMENTAL	
GROUPS	1.1 GEOPHYSICAL	1.2 HYDRO-METEOROLOGICAL			1.3 BIOLOGICAL	1.4 EXTRATERRESTRIAL	2.1 TECHNOLOGICAL	2.2 SOCIETAL	3.1 ENVIRONMENTAL DEGRADATION
SUBGROUPS	Earthquake: - ground-shaking Tsunami Mass movement (geophysical trigger): - landslide - rock fall - subsidence Liquefaction Volcanic activity: - ash fall - lahar - pyroclastic flow - lava flow	1.2.1 HYDROLOGICAL	1.2.2 METEOROLOGICAL	1.2.3 CLIMATOLOGICAL	Airborne diseases Waterborne diseases Vector-borne diseases Foodborne outbreaks Insect infestation: - grasshopper - locust Animal diseases Plant diseases Aeroallergens Antimicrobial resistant microorganisms Animal-human contact - venomous	Impact: - airburst - meteorite Space weather: - energetic particles - geomagnetic storms - shockwave	Industrial hazards: - chemical spill - gas leak - radiation [radiological, nuclear] Structural collapse: - building collapse - dam/bridge failures Occupational hazards - mining Transportation: - air, road, rail, water, space Explosions Fire Air pollution: - haze10 Infrastructure disruption: - power outage - water supply - solid waste, waste water - telecommunication Cybersecurity Hazardous materials in air, soil, water: - biological, chemical, radiological Food contamination	Acts of violence Armed conflicts: - international - non-international Civil unrest Stampede Terrorism: - chemical, biological, radiological, nuclear, and explosives Financial crises: - hyper-inflation - currency crisis	Erosion Deforestation Salinization Sea level rise Desertification Wetland loss/ degradation Glacier retreat/ melting Sand encroachment
Main types - subtypes (sub-subtypes)		Flood: - riverine flood - flash flood - coastal flood - ice jam flood Mass movement (hydro meteorological trigger): - landslide - avalanche (snow) - mudflow - debris flow Wave action: - rogue wave - seiche	Storm: - extratropical storm - tropical cyclone [cyclonic wind, cyclonic rain, cyclone (storm) surge] - convective storm [tornado, wind, rain, winter storm, blizzard, derecho, lightning, thunderstorm, hail, sand/dust storm] Extreme temperature: - heatwave - coldwave - severe winter condition [e.g. snow/ice, frost/ freeze, dzud] Fog	Drought Wild fire: - land fire [e.g. brush, bush, pasture] - forest fire Glacial lake outburst (flood)					

Table 1. WHO categorization of hazards taken from: Health emergency and disaster risk management framework. Geneva: World Health Organization; 2019.



A VAST AND INCREASING NEED

Fig. 6. Uganda: Ebola Disease outbreak in Mubende district - September 2022.
© WHO / Jimmy Adriko

Many emergencies result in significant surges in rehabilitation needs (23).

Surges are typically in trauma, burns or critical illness and result from hazards of geophysical, hydrological, meteorological, biological, technological or societal origin. Rehabilitation is most often associated with conflict and earthquake responses, but significant surges in rehabilitation needs have been generated by recent events such as tropical cyclones (29), blasts (30–32), building collapses (33), fires (34, 35), tsunamis (36), landslides (37) and volcanic eruptions (38). As shown by recent Ebola (39, 40), SARS and MERS (41), measles (42), Zika (43), diphtheria (44) and COVID-19 (45) responses, a wide range of outbreaks result in surges in both acute and long-term rehabilitation needs (23). At least eight of the nine WHO priority diseases of epidemic potential are likely to generate acute and/or post-acute rehabilitation needs (9).

Rehabilitation needs in emergencies are increasing.

Since 1980, the number of people affected by disasters has grown, with overall increases in the absolute number of injuries and injury to death ratios (2). The climate emergency is likely to further exacerbate the situation, while the risk of global pandemics persists. The number of global conflicts also continues to increase, with a recent resurgence in conflict-related deaths. Those surviving injuries from conflicts typically far outnumber deaths, and the evolving nature of conflict may result in a further increase in injuries requiring rehabilitation (46). Improved emergency and critical care across all emergencies are also likely to increase survival and, consequently, increase complex rehabilitation needs, as has been seen in military combatants (47). As rehabilitation needs increase, so does the demand for assistive products (48).

Where populations are displaced, evidence shows significant rehabilitation needs are likely (49). For example, 22% of Syrian refugees surveyed in Lebanon and Jordan had an impairment (50). Needs may vary between settings, depending on the trigger of displacement (such as a conflict or disaster, which can create new injuries), the environment where people are displaced, the loss of assistive products during displacement (51) and the displaced population's underlying health needs.

Emergencies disproportionately disrupt essential rehabilitation services. An obvious example of this is disease outbreaks – rehabilitation services were among the most disrupted by COVID-19 (7). Other hazards may also disrupt services by damaging facilities, limiting access, reducing workforce availability or disrupting digital services. Conflicts and protracted crises create particular challenges, although rehabilitation services are essential even in the midst of conflict (52). Across all hazards, rehabilitation services must prepare for the hazards they face by taking measures to ensure facilities are structurally safe, planning and rehearsing evacuations (53) and ensuring service delivery methods can be adapted to safely sustain essential services in an emergency (54).

No country is risk free, and emergencies can overwhelm even strong rehabilitation health systems (38, 55, 56). This situation is compounded in many low- and middle-income countries with scarce (8, 57), underdeveloped and poorly coordinated (28) rehabilitation services. In many instances, experienced international organizations and Emergency Medical Teams (EMTs) have provided critical acute and post-acute rehabilitation and helped establish or maintain essential rehabilitation services in a variety of emergency contexts (58–62). Responders must be appropriately trained and experienced and part of a coordinated approach (23), and ideally understand the local context and culture. An influx of new, less experienced, uncoordinated actors can create challenges (63). Rehabilitation service providers therefore need to understand and analyse the risks faced and plan to mitigate gaps in likely response needs, including planning how anticipated external support, whether national or international, will be integrated into a response.

The 2023 World Health Assembly resolution on rehabilitation

In 2023, WHO Member States unanimously approved a first ever resolution on rehabilitation. The resolution expresses deep concern that: **“most countries, especially developing countries, are not sufficiently equipped to respond to the sudden increase in rehabilitation needs created by health emergencies”**

It urges member states

“to ensure timely integration of rehabilitation in emergency preparedness and response, including emergency medical teams”

And requests the director general of WHO

“to support Member States to systematically integrate rehabilitation and assistive technology into their emergency preparedness and response... including by addressing the long-term rehabilitation needs of those affected by emergencies.”

➔ [Read the full resolution here](#)

Mandated by many global conventions, guidelines and standards

In 2021, the Seventy-fourth World Health Assembly called for all Member States to adopt an all-hazards, multisectoral, coordinated approach in preparedness for health emergencies. Many global conventions and agreements call for the inclusion of rehabilitation in emergencies. A number of humanitarian guidelines also cover the subject.

- ➔ **The Sendai Framework** (Priority 3: 30) calls for the integration of disaster risk management into primary, secondary and tertiary health care (13) and WHO advocates for a whole health system approach (12, 64).
- ➔ **Article 26 of the UN Convention of the Rights of Persons with Disability** (10) states that rehabilitation should begin at the earliest possible stage (20).
- ➔ **Inter-Agency Standing Committee guidelines** (65) include extensive recommendations on both maintaining essential rehabilitation services and emergency preparedness for a surge in rehabilitation needs.
- ➔ **WHO standards for EMTs** (15, 23) and the **Global Health Cluster** (17) include rehabilitation as a core component of care, while rehabilitation is included in the forthcoming WHO “H3” package of high priority health services in humanitarian settings. EMT minimum standards emphasize an early response.
- ➔ **Sphere minimum standards in humanitarian action** require responders to “ensure timely access to rehabilitation services and priority assistive devices” (5).
- ➔ Other clinical and operational guidelines underline the critical role of rehabilitation in early response such as the **International Committee of the Red Cross guidelines on war surgery: Volume 1** and **Volume 2** (18, 57) and consensus statements on medical responses to disaster (66) and conflict (67).
- ➔ The provision of rehabilitation is a component of the **1997 Anti-Personnel Mine Ban Convention** and **2008 Convention on Cluster Munitions**. These require state parties, or inter-alia the United Nations, International Committee of the Red Cross or international nongovernmental organizations, to provide rehabilitation services as part of overall assistance to those injured by such weapons.



Fig. 7. Thousands were left injured and homeless after a tsunami hit the town of Wani in Sulawesi, Indonesia, following an earthquake in 2018.

© WHO/EPA/EFE/Mast Irham



Fig. 8. Health Response to the Earthquake in Haiti.
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CURRENT CHALLENGES

Rehabilitation considerations are rarely included in preparedness planning.

A review of data gathered by WHO as part of the *Rehabilitation in health systems: guide for action* process revealed that of information available from 19 countries, only one (Nepal) had explicitly included rehabilitation in their national health emergency management plan. Similarly, in a 2022 (unpublished) census by World Physiotherapy of its 125 national member organisations, only 17% of 116 respondents reported the integration of physiotherapy into national or subnational emergency plans. Only one publication, from the Islamic Republic of Iran (68), details the development of a rehabilitation preparedness plan, while an investigation by the University of Sydney (69) found that the involvement of rehabilitation professionals in HEPR in the Philippines, Solomon Islands and Fiji was largely ad hoc and voluntary, with no supporting frameworks. Critically, they

reported that local rehabilitation services would be insufficient to meet the anticipated increased need for rehabilitation in health emergencies.

There is a low awareness of the role of rehabilitation.

In Nigeria, the main identified barrier to integrating rehabilitation into emergency management was a lack of established policies, while the main recommended action was to raise awareness of the role of rehabilitation in emergencies (70). A recurrent theme from responses is a lack of understanding or recognition of the role of rehabilitation amongst other responders (71, 72). Many interlinked factors may contribute to this (such as a lack of rehabilitation preparedness, emergency policies or leadership, or weak or poorly integrated rehabilitation services), but a major barrier is likely to be poor awareness of the role of rehabilitation in early response among key decision-makers.

The rehabilitation workforce is not prepared for emergencies.

A 2017 review found that the rehabilitation workforce is often not included in preparedness activities and recommended a greater focus on preparedness for the whole health care team (73). In Nigeria, only 3.5% of physiotherapists had any involvement in emergency preparedness activities in their place of work (70). Studies in India (74) and the Philippines (75) found that rehabilitation professionals were unlikely to be involved in preparedness and their roles in response were often poorly defined – and this is consistent with case studies from responses in high-income settings, including from the United States of America (76) and New Zealand (77).

Assistive products are often not included in preparedness planning.

A WHO study (51) found only 20% of responding countries had regulations on assistive products as part of emergency preparedness. In the Philippines, Solomon Islands and Fiji, stocks of assistive products were found to be insufficient for an emergency (69).

Rehabilitation is often not considered during early response.

A response review of the 2010 Haiti earthquake (78) highlighted the inadequate post-operative care and challenges of rehabilitation coordination. Similar findings from a 2017 review of the Mosul response (61) illustrated how little progress has since been made, where despite the plethora of guidelines published since 2010, and a significant window of preparedness, rehabilitation services were late to be considered, under-resourced and poorly integrated into the medical response.

A 2019 systematic review found rehabilitation services in recent disasters were not provided or insufficient, and largely uncoordinated (79), while recent responses, such as the 2021 Bata Blast in Equatorial Guinea (31) show change is still urgently needed to ensure rehabilitation is routinely considered in early response.

At times, decision-makers and responders cite the need to prioritize saving lives as a reason for not prioritising rehabilitation in the midst of an emergency. However, this is a false dichotomy – rehabilitation is fundamental to preserving life, reducing suffering and improving quality of the lives saved and should be considered an essential part of acute medical care – something that is fully in line with the humanitarian imperative (5). ➔



Fig. 9. Caterina. Uganda. 2018.
© Giles Duley / Legacy of War Foundation

Rehabilitation guidance is not yet “all hazard.” Guidance on rehabilitation in major trauma and burns-related emergencies is relatively strong (6, 23, 57, 66, 80) (though implementation often falls short) but there is an absence of rehabilitation considerations for other relevant areas, including chemical, biological, radiological and nuclear events. Of particular relevance, the rehabilitation role in disease outbreaks is generally not well described or adequately understood (23), and until recently, rehabilitation considerations in clinical management guidance and standards were lacking, despite significant challenges of mounting rehabilitation responses in outbreaks, in particular in resource-constrained environments (39). Recent WHO Ebola (40), diphtheria (44) and COVID-19 clinical guidance (45) that has integrated rehabilitation represents a positive change, but it is often late to be considered, and national and international outbreak response plans need to include a greater focus on the identification and management of both acute and long-term rehabilitation needs.

Many countries at greatest risk of emergencies have the weakest rehabilitation services. There are enormous gaps in provision of rehabilitation services in many low- and middle-income countries (8) and significant limitations in workforce (81). Such scarce resources underscore the need for careful planning and integration of national rehabilitation resources into HEPR as well as for careful consideration of the need for international surge support, via EMT or international organizations. This also underlines how strengthening rehabilitation as an integral part of the health system can contribute to emergency preparedness in low- and middle-income settings by raising the capacity of existing services to meet a surge in needs.

Rehabilitation services in many countries are also fragmented and poorly integrated into the health system. Services may fall under the responsibility of several government ministries or departments, and rehabilitation services may be delivered by a range of providers including government, military, private, nongovernmental and civil society organizations. This complicates its integration into preparedness, response and recovery (82) and can create challenges in coordination during response. Artificial separation of rehabilitation coordination from related areas of work including trauma care, victim assistance or mental health and psychosocial support can also reduce the cohesiveness of emergency responses.

The impact of emergencies on rehabilitation needs persists far longer than the response phase of any emergency (23, 83). Emergencies present opportunities to strengthen rehabilitation services (29), but response and recovery require coordination and careful early strategic planning to avoid undermining local services and ensure sustainability (78). Unfortunately, the long-term impact of an emergency on rehabilitation needs is rarely considered, particularly at the beginning of any crisis (78). In the absence of preparedness and without clear leadership, integrating rehabilitation into early recovery in the midst of an acute response can be challenging, with decision-makers facing a range of competing priorities. This can mean missed opportunities to “build back better”.

Rehabilitation is rarely prioritized during protracted emergencies. Many protracted emergencies are typified by ongoing violence, displacement and service disruption. They occur most frequently in low- and middle-income settings where rehabilitation services are already weak. Like conflicts, they result in cumulative rehabilitation needs. Despite rehabilitation long being described by WHO as one of the five types of essential health services (84), a 2018 Global Health Cluster review (16) of essential packages of health services in eight protracted emergencies found none included rehabilitation (though disability was included in one).

There is a lack of information available about the status of rehabilitation services in emergency preparedness and response (69, 70). The WHO Rehabilitation in health systems: guide for action enables countries to quickly identify if rehabilitation is a basic consideration of national preparedness.

There is though a lack of globally agreed standards or processes against which rehabilitation preparedness can be evaluated, and there is no monitoring of rehabilitation preparedness or the inclusion or availability of rehabilitation in response. This makes monitoring and evaluation, and generating evidence, challenging: a review of evidence for rehabilitation in preparedness (85) did not find a single paper.

Our ability to generate meaningful data on rehabilitation needs in emergencies is limited. An inability to rapidly evidence rehabilitation needs is often a constraint in early response. One major current limitation is the lack of a simple, globally agreed method for easily quantifying injuries in mass casualty emergencies that considers their likely long-term impact on functioning. Also lacking is a generic, global, rapid (and emergency appropriate) measure of functioning outcomes following trauma or disease (52). This is particularly important in novel pathogens, and its absence may contribute to delays in identifying secondary impairments such as those seen in post COVID-19 condition and post-Ebola syndrome.

There is also limited research on the impact of rehabilitation interventions in humanitarian settings (25, 26, 79, 85). As long as data from emergencies focus overwhelmingly on mortality, and in the absence of surveillance that considers rehabilitation needs, it will remain difficult to coordinate responses and provide evidence to inform preparedness. Increased reporting of the non-mortality consequences of emergencies is needed to highlight the significant need and benefit of rehabilitation interventions.



Fig. 10. Health Response to the Earthquake in Haiti - January 2010
© WHO / Victor Ariscain

Rehabilitation and people with disability in emergencies

There is evidence to indicate that people with disability, while not a homogenous group, are disproportionately affected and have a range of health needs in emergencies (65). Given their knowledge and experience of working together with people with disability, rehabilitation professionals are often well placed to support their access to other health and protection services, such as vaccination, sexual and reproductive health (including gender-based violence response) and cash assistance services. They can also support the inclusion of people with disability in emergency preparedness, including through collaborative coordination and advocacy (86), community risk mapping, identification of vulnerable individuals (87), and ensuring personal preparedness plans are in place (88). People with disability may require access to rehabilitation and assistive products during an emergency, not only to preserve their functioning and to prevent complications, but also to optimize their independence and autonomy, which in turn supports their access to other essential services and participation in humanitarian action. Disruption or reduced access to these services can place them at increased risk. However, rehabilitation is only one component of a comprehensive approach to including persons with disability in emergency risk management, which is a cross-sectoral issue. Actions needed are outlined comprehensively in the United Nations' **Inter-Agency Standing Committee (IASC) guidance** (65).



Fig. 11. Accessibility challenges for a wheelchair user in a refugee camp.
© Pete Skelton



SUPPORTING THE INCLUSION OF REHABILITATION IN HEPR

Fig. 12. COVID-19 Response at Al-Amal Health Facility implemented by WHO and KSR relief, Aden, Yemen - October 2021
© WHO / Gabreez production

The 2022 WHO report by the WHO Director General, *Strengthening the global architecture for health emergency preparedness, response and resilience* (89) outlined three key principles: equity, inclusivity and coherence. The inclusion of rehabilitation in HEPR, beginning with preparedness, is central to each of these principles, and to ensuring the best outcomes for patients.

WHO have also proposed a paradigm shift in emergency management with its Health Emergency and Disaster Risk Management (HEDRM) Framework (64). Similarly, a shift in the perception of rehabilitation in emergencies is also required to ensure the best possible outcomes for those affected by emergencies. This includes challenging common misconceptions, such as that rehabilitation is provided “later” in care, as outlined in Table 2.

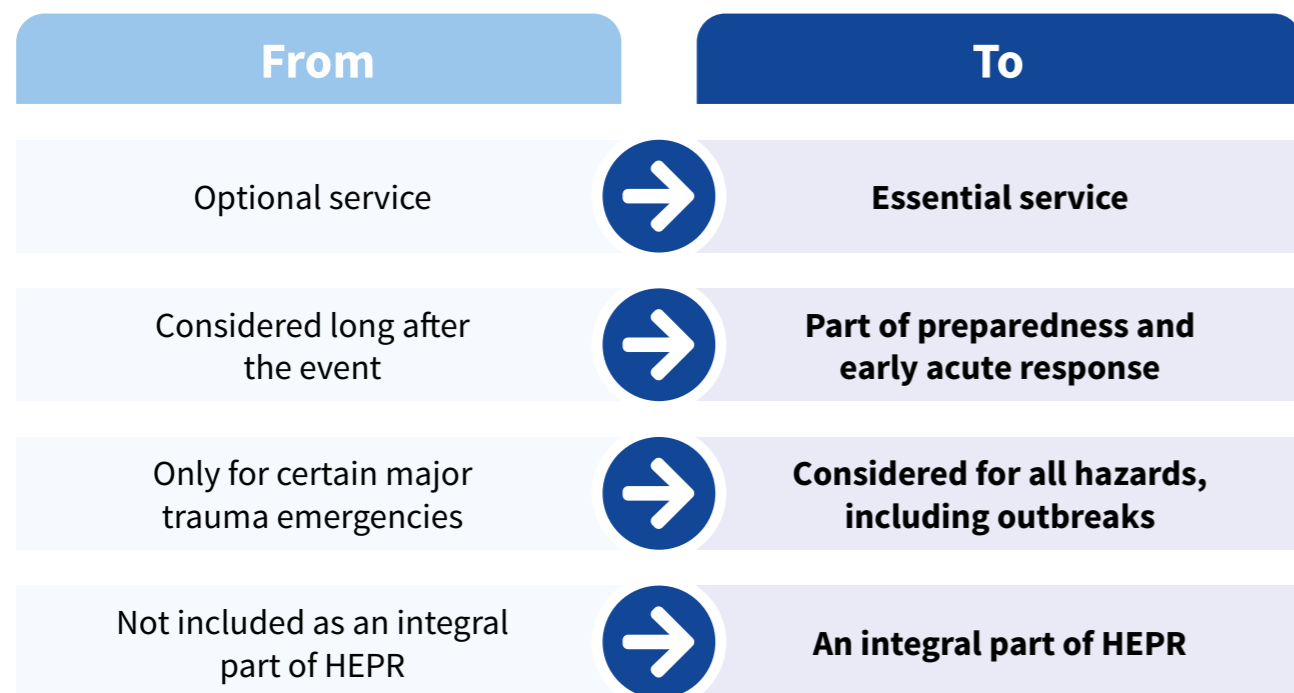


Table 2. Changing perceptions of rehabilitation.

Rehabilitation preparedness in action

To begin to address the key challenges outlined above, greater emphasis must be placed on emergency preparedness of rehabilitation services, and the integration of rehabilitation services and workforce into wider health emergency preparedness planning. There are a small number of positive examples of where this has been done, and a selection of these are highlighted below.

- ➔ **On a local level:** a number of hospitals, such as the Karolinska University Hospital in **Sweden**, have started to integrate rehabilitation into their emergency planning. In the **Philippines**, rehabilitation associations have grouped together to integrate risk assessment and community-level disaster risk reduction into their activities.
- ➔ **On a national level:** in **Nepal’s** Kathmandu Valley, national preparedness measures had a significant impact on disability related to the 2015 earthquake (60). The early implementation of rehabilitation-specific coordination was widely recognized as playing a critical role in the response (59, 60). In **Japan**, the creation of the **Japan** Rehabilitation Assistance Team resulted in the rapid deployment of rehabilitation professionals in response to the 2016 Kumamoto earthquake (90). See case study boxes.
- ➔ **On a global level: WHO’s EMT initiative** has played a critical role in responding to lessons learned from emergencies (62, 66). National and international EMTs are required to include rehabilitation (6, 15); specific technical standards for rehabilitation in EMTs have been published (23); and the importance of rehabilitation in outbreak and burns mass casualty teams has been emphasized (80). Work to support the implementation of these standards continues.



Fig. 13. damaged building in Sirte, Libya during the conflict in 2011.
© Pete Skelton



Case study:

Establishing rapid response rehabilitation teams in Japan

Following lessons learned from the Great East Japan Earthquake in 2011, the Japan Rehabilitation Assistance Team (JRAT) was established. JRAT teams focus on sustaining local rehabilitation services, alongside targeted interventions for those displaced.

Almost all prefectures now have their own local JRAT comprising physicians, physiotherapists, occupational therapists and speech and language therapists. A manual for disaster rehabilitation was also developed to support activities. There are also specially trained rapid response teams that are deployed at a very early stage after disasters to estimate rehabilitation needs and establish collaboration between the JRAT and the disaster management authorities. Response activities last until the local rehabilitation system is restored.

The JRAT initiative was successfully deployed immediately following the Kumamoto earthquakes in 2016. A total of 2036 rehabilitation professionals worked in the area and another 895 provided logistical support over 10 weeks.



Case study:

Occupational therapists promote disaster risk reduction in the Philippines

In the Philippines, occupational therapists have pivoted towards promoting disaster risk reduction and preparedness, having recognized that their past efforts had been focused on disaster response.

The Philippine Academy of Occupational Therapists (PAOT) conducted capacity-building activities, initially targeting occupational therapists and institutions that offer therapy services. They also reached out to communities, focusing particular attention on people who may face increased risks during emergencies, such as people with disability and the elderly.

Finite resources were managed and utilized through strategic alliances: the PAOT partnered with professional organizations of physiotherapists and speech-language pathologists, as well as local government units, to ensure the viability and sustainability of their initiatives.



Case study:

Rehabilitation preparedness helps earthquake response in Nepal

In 2011, Nepal's Ministry of Health and Population, in collaboration with WHO and a number of international organizations, began a comprehensive programme of mass casualty preparedness in the Kathmandu Valley. Clinical protocols spanning emergency care to rehabilitation were developed, which included guidance on rehabilitation management, alongside multidisciplinary training and patient education materials. Key rehabilitation equipment was stockpiled.

Importantly, the relationships between key governmental and nongovernmental actors were also strengthened, as were the links between designated hub and satellite health facilities. The work proved to be of critical importance in the 2015 earthquake response. It also contributed to the early establishment of rehabilitation coordination as a subcluster of the health cluster, with strong links to EMT coordination and the Ministry of Health and Population.

Following the earthquake, the work was expanded and strengthened, with the permanent integration of rehabilitation representation into the Health Emergency Operations team. The experience of integrated rehabilitation coordination, spanning preparedness, response and recovery, has also provided an opportunity to build back better – strengthening rehabilitation services and further integrating it into the health system.



Fig. 14. Nepal earthquake.
© Pete Skelton



Case study:

Integrating rehabilitation into an EMT brings wide ranging benefits

Rehabilitation is a core component of the Australian Medical Assistance Team (AUSMAT) – A WHO classified EMT – and has been a feature of responses including numerous international deployments for COVID-19. The integration of rehabilitation professionals into these teams has had several benefits for national preparedness and response that extend beyond the ability to deliver rehabilitation as part of an EMT response. Two benefits for national rehabilitation emergency response capabilities are as follows.

Firstly, AUSMAT rehabilitation professionals take the skills they learn through AUSMAT deployments and mandatory training back to their home jurisdictions and health services, thereby boosting the numbers of local health staff who are familiar with disaster and health emergency response systems and structure.

Secondly, the presence of rehabilitation professionals on deployment (and as both faculty and participants on training courses) raises the profile of the role of rehabilitation in emergency and disaster response and provides a practical demonstration of the integration of rehabilitation into a multidisciplinary team.

In this way, AUSMAT-trained rehabilitation professionals become sensitized to their potential roles in domestic responses, and non-rehabilitation members of disaster and emergency response organizations become aware of the usually unmet need for rehabilitation services to be integrated into their disaster preparedness plans.



Fig. 15. An Ausmat Occupational Therapist provides training during COVID-19.

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Case study:

Rehabilitation in emergency preparedness planning in a hospital

At the Karolinska University Hospital in Stockholm, Sweden, emergency preparedness plans include rehabilitation professionals as part of immediate emergency care to integrate rehabilitation and improve patient outcomes in an emergency.

Each department has an emergency plan including specific roles for occupational therapists (OT) and physical therapists (PT) and a separate plan for social workers and psychologists.

Depending on the nature of the emergency, the first step in the plan is to gather appropriately skilled OTs and PTs to support the management of acute inpatients. The plan also includes OTs and PTs specialized in burn injuries, acute orthopaedic injuries, hand injuries and respiratory therapy in the emergency department, to help with acute care in support of the wider team. Examples of roles include casting and splinting upper extremities, positioning and providing respiratory care. A team comprising an OT, PT and a social worker are also made available to the emergency room to provide assessment of patients who may not need acute hospital care. The remaining staff are organized to provide wider support. One major component of this is rapid discharge planning at the trauma department to make room for new patients.

ACTIONS TO INTEGRATE REHABILITATION INTO HEPR

While previous responses to emergencies have lacked sufficient rehabilitation capacity (79) and been hindered by a lack of preparedness, reports from responses including earthquakes (60, 72, 77, 91, 92), tropical cyclones (29, 53, 93), conflicts (52, 58, 61), bombings (30) and tsunamis (36, 71), describe effective practices and lessons learned that can now be applied as part of preparedness.

Inter-Agency Standing Committee guidelines also make a number of recommendations that are highly relevant to rehabilitation (65). Steps include the implementation of mechanisms to support a surge in staff, specialist training, stockpiling of equipment, integration into EMTs, the development of adapted clinical protocols and pathways, plans for long-term follow up, standardization of data, and the importance of leadership and coordination. Lessons can also be drawn from the positive examples of countries like Nepal (60) and Japan (71). These have been mapped below against the HEDRM Framework proposed by WHO, with recommendations for rehabilitation specific actions.

HEDRM Framework area ⁽⁶⁴⁾	Rehabilitation specific actions
Policies, strategies and legislation	Rehabilitation is included in national and subnational HEPR policies, strategies and legislation as an essential part of the health system preparedness and response, while HEPR considerations are also included in new rehabilitation policies.
Planning and coordination	<p>All rehabilitation services are mapped (5) and included in continuity plans as an essential health service (65) with modified referral pathways for emergencies developed (65).</p> <p>Rehabilitation leadership is included in planning and coordination (60).</p> <p>Rehabilitation considerations are fully integrated into health and multisectoral emergency plans, and rehabilitation is a component of any designated coordination mechanism (94).</p> <p>Multisectoral planning includes strong links to other key sectors, including, where available, social support services.</p> <p>Rehabilitation provider networks are established or strengthened, with roles identified (60, 69).</p> <p>Existing service users are involved in planning and coordination (65).</p>

HEDRM Framework area ⁽⁶⁴⁾	Rehabilitation specific actions
Human resources	The rehabilitation workforce is included in surge planning (including for example in EMTs (6) and/or the development of surge rosters) and have clearly identified roles (77). Rehabilitation professionals have both personal and professional preparedness plans (95). They also receive emergency specific clinical and operational education and training relevant to their role (94), and are included in facility or service level training and exercises (65). In some contexts, the integration of emergency preparedness into undergraduate rehabilitation training may be warranted (70).
Financial resources	Rehabilitation services are included as part of funding allocated for preparedness activities as well as contingency funding for response (65, 96).
Information and knowledge management	<p>Rehabilitation information management systems must be resistant to disruption with alternative backup systems in place.</p> <p>Routine rehabilitation reporting from rehabilitation services is available and can inform preparedness and early response planning.</p> <p>Emergency monitoring systems such as the Health Resources and Services Availability Monitoring System (HeRAMS), which includes rehabilitation, are used during to monitor the status and availability of essential rehabilitation services.</p> <p>Emergency-specific, context-relevant multidisciplinary technical guidance is developed that includes integrated rehabilitation clinical guidance, protocols, referral pathways (5) and patient education materials (69).</p> <p>Surveillance includes harmonized data that examine morbidity (5) and functioning outcomes as well as mortality, and disaggregates by disability (65).</p> <p>Systems and tools should be developed to identify and track patients requiring rehabilitation and follow up in the event that services are overwhelmed.</p> <p>Where rehabilitation services are weak, a centralized rehabilitation referral hotline may be considered as a way of identifying and triaging rehabilitation needs during a response, while channels to communicate to both service providers and users about rehabilitation service availability (and pathways) should be developed.</p>

HEDRM Framework area ⁽⁶⁴⁾	Rehabilitation specific actions
Risk communications	The rehabilitation workforce are included in risk communication strategies – both as recipients (e.g. information on personal protective equipment (PPE)), and potential deliverers of adapted risk communication strategies that target persons with disabilities and those who are vulnerable and/or at risk (65).
Health infrastructure and logistics	<p>Rehabilitation facilities must be safe, accessible and secure and prepared for emergencies (65), including evacuation plans to protect staff and occupants (53) and provisions for expanding space to provide surge capacity.</p> <p>Rehabilitation equipment needs (including assistive products) should be evaluated and stockpiled to meet anticipated surges in emergency needs (65, 94, 96) and supply chains for surge procurement identified (51).</p> <p>Essential rehabilitation services are included in plans for stockpiling of items such as PPE.</p>
Health and related services	<p>Health service preparedness is comprehensive, including all levels of health care (64) with integration of rehabilitation throughout, with service preparedness extending as far as definitive rehabilitation.</p> <p>Rehabilitation services are included in risk and capacity assessments and in plans to rapidly scale up health services, with specific integrated plans for the scale up of rehabilitation services. This may include expanding integrated capacity, creating rehabilitation rapid response or specialized care teams (6), or creating new services to ensure continuity of care such as community outreach (65, 97). Where early discharge is used as a strategy to free space, rehabilitation professionals must be included in plans to provide effective follow-up care.</p> <p>Rehabilitation services are included in planning to ensure continuity of essential services during emergency-related disruptions with careful consideration as to which services (or health conditions) may need to be prioritized (54), which can be temporarily diverted, and which services may require adaptation to enable continuous and safe delivery.</p>

HEDRM Framework area ⁽⁶⁴⁾	Rehabilitation specific actions
Health and related services (Continued)	During preparedness analysis, where services are found to be absent or significantly weak, this presents an opportunity to invest in rehabilitation services as part of an overall approach to health systems strengthening. Subnational or international collaborations can be pre-agreed to provide short-term surge to meet anticipated gaps.
Community capacities for HEDRM	Where appropriate, the rehabilitation workforce may play a role in strengthening community preparedness, particularly through their work with persons with chronic health conditions or disability and their caregivers (69, 88, 97, 98).
Monitoring and evaluation	<p>Medium- and long-term morbidity, quality of life and functioning outcome measures are routinely included in monitoring and evaluation of responses (20).</p> <p>Health systems report on the status on rehabilitation in HEDRM and include measures of its effectiveness in any response.</p> <p>Rehabilitation is integrated into monitoring of health service and health systems preparedness.</p>

CONCLUSION

Rehabilitation is an essential health service. In emergencies it plays a critical role in responding to a surge in needs by optimizing patient outcomes and improving health service efficiency, and yet it is rarely integrated into health emergency preparedness. Successful HEPR requires a whole health system response, including all levels of health care (13). The integration of rehabilitation into all-hazard HEPR is therefore essential in order to ensure the best possible outcomes for those affected by emergencies, and to ensuring that emergency responses are equitable, inclusive and coherent. By mapping key practical steps for stakeholders to take against the WHO HEDRM Framework, we have outlined how this may be realized. Rehabilitation stakeholders can play a critical role in supporting this work – but without integration into the wider health system and support from the health and emergency management sectors, rehabilitation will remain an afterthought in emergencies.

While this policy paper focuses on specific measures to be taken to integrate rehabilitation into all-hazard HEPR, rehabilitation preparedness is often needed most in contexts where rehabilitation services are already weak and poorly integrated into the health system. In such locations, improving rehabilitation preparedness requires a twin-track approach – strengthening overall delivery of rehabilitation as an integral part of a health system, while also taking specific measures set out in this paper to integrate rehabilitation in HEPR, and, importantly, also integrating preparedness principles into rehabilitation service development. Overall investment in rehabilitation services can significantly raise the threshold at which services are overwhelmed by an emergency. Further information on health systems strengthening for rehabilitation can be found in the WHO resource **Rehabilitation in health systems: guide for action**.



Fig. 16. Earthquake and tsunami survivors rest as they wait to be transported by military planes at Mutiara Al Jufri Airport in Palu, Central Sulawesi, Indonesia, 03 October 2018.
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