

Chapter 15

Rehabilitation: Essential along the Continuum of Care

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INTRODUCTION

The World Health Organization (WHO) has defined rehabilitation as “a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions, in interaction with their environment” (Nas and others 2015, 1). Rehabilitation interventions optimize well-being by addressing impairments, limitations, and restrictions in many areas (areas as disparate as mobility, vision, and cognition), as well as by considering personal and environmental factors (Nas and others 2015).

Individuals with health conditions or injuries may require rehabilitation across the course of their lifespan. The timing and type of intervention that a rehabilitation provider selects depend greatly on several factors. These include the etiology and severity of the person’s health condition, the prognosis, the way in which the person’s condition affects the person’s ability to function in the environment, as well as the individual’s identified personal goals.

Rehabilitation services may be delivered in any setting (including in hospitals and in communities), depending on individuals’ needs and situation. In hospitals, acute rehabilitation is particularly important in facilitating recovery, maximizing the effect of emergency and

surgical services, preventing complications, and ensuring that the optimal functional outcome is achieved. Rehabilitation in the community similarly aims to optimize functioning in those who are not in the hospital system, to identify needs, and to provide services in a person’s typical environment. Community rehabilitation services frequently are accessed by those with chronic health conditions or sensory impairment, as well as by children with developmental conditions.

The demand for community- and hospital-based rehabilitation services will continue to grow as the result of several factors. First is the significant epidemiological transition and demographic shift underway globally (Dalal and others 2015; Dias and others 2013; GBD 2015 Disease and Injury Incidence and Prevalence Collaborators 2016). Second, as access to care expands to universal health coverage, rehabilitation is essential for maximizing the effectiveness of a range of medical and surgical interventions. Finally, injuries (which remain an escalating public health concern in some countries) also contribute substantially to the demand for rehabilitation services (WHO 2014). These factors suggest that the positive health, social, and economic effects of rehabilitation will have a more profound influence on population health in coming years (WHO 2016a).

GROWING DEMAND FOR REHABILITATION SERVICES

Health and Population Trends

The prevalence of noncommunicable diseases has increased by 13.7 percent in the past 10 years (GBD 2015 Disease and Injury Incidence and Prevalence Collaborators 2016). Noncommunicable diseases and associated health complications can have a profound effect across functioning domains, such as mobility, respiration, vision, cognition, and communication. Studies have shown that rehabilitation can effectively assist in prevention of and recovery from various health conditions. Stroke and cardiac rehabilitation have been shown to be effective in increasing independence, reducing mortality, and reducing hospital readmissions (Jolliffe and others 2000; Stroke Unit Trialists' Collaboration 2013; Taylor and others 2010). Similarly, rehabilitation following amputation improves physical functioning and improves the likelihood of home discharge from the hospital (Fleury, Salih, and Peel 2013; Kurichi and others 2009).

Demand for rehabilitation services directly corresponds to the incidence of injuries (such as those caused by road traffic crashes, burns, near drownings, falls, and poisonings). For every one of the more than 5 million people who die as the result of injuries every year, 10 to 15 more people are estimated to survive, many with ensuing impairment. A significant portion of injuries are caused by road traffic injuries (WHO 2014), which are predicted to become the seventh leading cause of death by 2030. The number of road traffic injuries is anticipated to increase, especially in low-income countries as economies develop and more people use vehicles (Gosselin and others 2009). Along with surgical and medical interventions, rehabilitation helps to mitigate the profound socioeconomic impact of non-fatal injuries.

The consequences of the demographic shift currently underway globally are substantial; the number of individuals older than age 60 years is projected to increase 56 percent globally by 2030 (UN 2015). Aging is associated with natural decrements in intrinsic capacity (such as declines in musculoskeletal strength and cognitive function) that increase vulnerability to health conditions and injuries (WHO 2015). Widespread availability of rehabilitation services is essential for health systems to be able to respond effectively to the needs of older populations. Numerous studies have concluded that community-based rehabilitation increases the safety and independence of older people, reduces the risk of falls, and decreases the need for hospital and nursing home

admissions (Beswick and others 2008; Gillespie and others 2012). Ensuring that the disabilities associated with aging are minimized is a major priority for policy development (UN 2015); health systems need to take concerted action to ensure that they can provide older populations with the requisite services.

The potential benefits of rehabilitation services are not restricted to aging and adult populations. Children constitute a significant and important portion of users of rehabilitation services. Although fertility rates are slowly declining in many low- and lower-middle-income countries, populations continue to expand. For example, 48 percent of the population of Chad and 42 percent of the population of Timor-Leste are between ages 0–14 years (World Bank 2016). Furthermore, while child mortality rates are declining, not all who survive actually thrive (Grantham-McGregor and others 2007; WHO 2016b). Early interventions that optimize developmental outcomes for children with various health conditions (including neurological, congenital, and intellectual impairments), as well as injuries, can positively affect participation rates in education, community activities, and future capacity to work.

Expanded Access to Health Care

As access to more advanced emergency, trauma, and medical care expands, rehabilitation becomes proportionally more important. It constitutes an essential aspect of care for many of those who experience, or are at risk of experiencing, short-term or long-term residual impairment and functioning limitations following injuries or illnesses. These include the following:

- Individuals with injuries or medical conditions requiring lower-limb amputation. Amputations may effectively save lives, but mobility will decline substantially without proper postoperative stump management, strengthening, and training in the use of a mobility device such as a prosthesis (Fleury, Salih, and Peel 2013; Godlwana, Stewart, and Musenge 2015).
- Children with spastic cerebral palsy. Antispasmodic medication may be effective, but children's independence may be largely unchanged without adequate supported seating, splinting, and functional retraining (Aisen and others 2011; Novak and others 2013).
- People with burn injuries. Such individuals may benefit from skin grafting, but rehabilitation is required from the acute to long-term phase of recovery to prevent or minimize skin contractures, to regain strength

and dexterity, and to maximize functional outcomes (Proctor 2010).

- Those with spinal cord injuries (particularly complete and high-level injuries) who have received optimal care in the acute phase. Without access to appropriate rehabilitation and long-term care, such individuals may experience potentially fatal complications, such as pressure sores and urinary tract infections (Nas and others 2015).

Integrating rehabilitation into health care systems and providing early access to services can benefit both individuals and health systems. Such integration can help to ensure optimal outcomes from medical and surgical interventions, and it can mitigate the risks of ongoing complications that may burden the health system. Furthermore, the benefits of rehabilitation are realized beyond the health system. By restoring functioning, rehabilitation can enable people to take up or resume family and work roles and can enable them to participate in education and community life, with potentially substantial economic and social implications (WHO 2017).

UNMET REHABILITATION NEEDS AND PROMISING PROGRAMS IN MIDDLE-INCOME COUNTRIES

In many parts of the world, the capacity to provide rehabilitation is limited or nonexistent, and the needs of the population remain largely unmet (Anchique Santos and others 2014; Atijosan and others 2009). Analysis suggests that 92 percent of the burden of disease in the world is related to an etiology for which rehabilitation may be required; it further suggests that a strong negative relationship exists between countries with the highest rehabilitation need and the availability of rehabilitation professionals (Gupta, Castillo-Laborde, and Landry 2011).

The true effect of this unmet need is difficult to capture, partly because the benefits of rehabilitation are realized longitudinally and in outcomes that are more challenging to measure (such as participation in work and education). Moreover, few studies have assessed the long-term and comprehensive effects of rehabilitation; these effects may be made manifest in the ability to return to or engage in meaningful occupation and gainful employment, to participate in education, and to achieve a degree of independence with self-care tasks. Deductive inference suggests, however, that the health and social impacts of failing to receive necessary rehabilitation services will fall most heavily on those who are

the most economically disadvantaged. The lack of robust impact studies notwithstanding, substantial evidence on the effectiveness of rehabilitation on health, economic, and quality of life outcomes provides ample impetus to adopt a systematic approach to building and strengthening rehabilitation services. Several examples from upper-middle-income countries demonstrate the feasibility of implementing rehabilitation interventions in health systems with limited resources for health and a diversity of approaches to doing so.

Expanding the Availability of Rehabilitation in Mexico

Mexico responded to its population's growing rehabilitation needs by developing 46 first-level rehabilitation units that provide evaluation, therapy, and referral; these units are staffed by physiatrists, physiotherapists, social workers, and nurses. The development of these units has increased Mexico's rehabilitation services capacity by 60 percent. In addition to these services, Mexico also has 1,444 community-based basic rehabilitation units distributed across the country, and rehabilitation services are integrated in general and specialized hospitals and institutions (Guzman and Salazar 2014).

Speeding Access to Acute Rehabilitation in Brazil

The Orthopaedic and Traumatology Institute at a hospital in São Paulo, Brazil, has created a simplified rehabilitation program to address the rehabilitation needs of those in its care. Before the program's development, people who sustained spinal cord injuries, amputations following limb injuries, and severe musculoskeletal injuries had to wait to receive therapy for up to one year following their injuries. For many people, this delay resulted in devastating secondary complications that easily could have been prevented, such as pressure sores, joint deformities, and chronic pain. The program has had a profound effect on the prevention of complications and resulting functional outcomes, and it demonstrates how facilities with limited resources can benefit from basic rehabilitation strategies (Mock and others 2006).

ECONOMIC CASE FOR INVESTMENT

The diversity in the scope of rehabilitation interventions and the settings in which they are provided create a challenge for cost-effectiveness assessments. This limitation notwithstanding, several examples of the application of rehabilitation in the context of specific conditions demonstrate cost savings. These tend to capture cost

benefits in the acute phase of care for health systems and not the economic advantages for service users, which may be more profound.

Cost savings associated with rehabilitation are not always fully accrued by the health sector. They may be realized through reduction in ongoing care costs provided by social services, the persons themselves, or their family members. A multicenter cohort analysis from 62 rehabilitation services in third-level hospitals in the United Kingdom (Turner-Stokes and others 2016) found specialized rehabilitation for complex neurological conditions to be highly cost-efficient. The weekly care costs for a person with a spinal cord injury who was highly dependent were reduced by £847; approximately 22.7 months were needed to offset the cost of the rehabilitation episode.

Rehabilitation also has been found to be cost-effective in the context of preoperative and postoperative care. Provision of rehabilitation before and after lumbar spine fusion surgery in a hospital in Denmark resulted in lower costs for both the hospital and patients. In addition to the benefit of reduced hospital length of stay, costs were 1,625€ lower per patient once direct (hospital fees) and indirect fees (financial burden for patients before returning to work) were considered (Nielsen and others 2008).

Whereas large, high-quality methodical studies of rehabilitation cost-effectiveness originate predominately from high-income countries, studies from low- and middle-income countries (LMICs) suggest that the same is true in these settings. Cardiac rehabilitation in LMICs, for example, has been found to save costs, compared with routine management based on provider judgment. In Brazil, cardiac rehabilitation leads to mean monthly savings per patient of US\$190. In Colombia, the economic benefit was calculated as significantly higher; the cost-effectiveness of a typical cardiac rehabilitation program for patients with heart failure is estimated to be US\$998 per quality-adjusted life year, compared with usual care with five-year follow-up (Oldridge, Pakosh, and Thomas 2016).

Although the literature is limited to high-income countries, promising evidence of the cost-effectiveness of rehabilitation programs for reintegration into the workplace exists (European Agency for Safety and Health at Work 2016; Franche and others 2005). Studies suggest that although there is an initial investment in return-to-work programs (typically incurred by the employer), there can be a substantial return for society. Cost savings are almost entirely due to foregone benefit payments (Bardos, Burak, and Ben-Shalom 2015). One study found that return-to-work rehabilitation programs resulted in a 25 to 30 percent reduction in lost workdays

and a 40 percent reduction in health care costs (for individuals with short-term disabilities) (Beal 2007). Another study found that for every dollar invested in return-to-work rehabilitation, \$2.35 is returned to society (Na 2016). The magnitude of return on investment to taxpayers is dependent on the disability scheme in the country; regardless, without return-to-work programs, employees affected by injury or illness may face substantial reductions in standard of living. Depending on the availability of resources, such programs could be adjusted for most settings.

ESSENTIAL PACKAGE OF REHABILITATION INTERVENTIONS

The essential package of interventions presented in table 15.1 is an initial attempt to compile rehabilitation interventions in a minimum essential set of services. The interventions are based on the *International Classification of Functioning, Disability, and Health* (WHO 2001) and the *International Classification of Health Interventions* (WHO 2016c). As such, the interventions are not mapped to specific diagnoses and may be performed in the context of many health conditions. The rehabilitation interventions included in the essential package are targeted at resource-constrained settings, such as a district hospital in Sub-Saharan Africa. However, countries are not restricted to this level; when the package is applied in settings with greater resource availability, countries are encouraged to expand the scope, quality, and availability of interventions.

Certain important adjuncts to rehabilitation have not been included in this package of interventions. Prescription of medication (for example, analgesia to assist with pain management or antispasmodic medication to assist with tone or spasticity) also may be considered if it is in the scope of practice of the provider. Use of medication during selected interventions, or as an intervention in its own right, can assist with patient comfort and ability to participate in functional activities. Psychological interventions also are an important component of rehabilitation, not only in the context of mental health, but also for people experiencing different impairments (such as physical or sensory). Mental health interventions for adults and children are exclusively covered in the third edition of *Disease Control Priorities (DCP3)*, volume 4, *Mental, Neurological, and Substance Use Disorders* (chapters 4 [Hyman and others 2015] and 8 [Scott and others 2015]).

The rehabilitation workforce is potentially the most important mechanism for delivering the package

Table 15.1 Essential Package of Rehabilitation Interventions

Intervention area	Platform for delivery		
	Community ^a	Primary health center	Hospital ^b
Musculoskeletal system	<p>Transfer training</p> <p>Mobility training (including gait training)</p>		<p>Prescription^c of mobility techniques customized to the condition and individual</p> <p>Acute mobilization—inpatients and outpatients</p>
	<p>Basic lower limb, upper limb, and trunk/spine exercise and symptom management programs according to standard protocols based on presentation</p> <ul style="list-style-type: none"> • Joint mobilization • Stretches/range of movement • Strengthening 	<p>Simple lower limb, upper limb, and trunk/spine exercise and symptom management programs based on diagnosis (condition specific)</p>	<p>Prescription^c of lower limb, upper limb, and trunk/spine exercise and symptom management programs customized to the condition and individual</p> <p>Postamputation management</p> <ul style="list-style-type: none"> • Stump care • Limb positioning
	<p>Body repositioning for</p> <ul style="list-style-type: none"> • Pressure area care • Supportive seating, in wheelchairs <p>Upper limb functional retraining</p> <ul style="list-style-type: none"> • Functional gross and fine motor movement patterns • Compensatory strategies 	<p>Ponseti clubfoot treatment</p>	<p>Prescription^c of upper limb functional retraining techniques customized to the condition and individual</p> <p>Prescription^c of scar and contracture management techniques to optimize range of movement</p>
Cardiorespiratory system	<p>Cardiac rehabilitation (such as recommendations for physical activity, nutrition, and risk factor management)</p> <p>Breathing exercises to improve respiratory function, including sputum clearance techniques</p>		<p>Prescription^c of a cardiac rehabilitation program customized to the condition and individual</p> <p>Chest function interventions, including sputum clearance techniques</p>

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Table 15.1 Essential Package of Rehabilitation Interventions (continued)

Intervention area	Platform for delivery		
	Community ^a	Primary health center	Hospital ^b
Neurological systems and communication	<p>Basic swallow retraining/interventions</p> <p>Speech and communication interventions</p> <ul style="list-style-type: none"> • Interventions for aphasia and ataxia • Sign language • Other alternative mechanisms of communication <p>Cognitive interventions</p> <ul style="list-style-type: none"> • Training in basic-level cognitive functions • Cognitive compensatory strategies (techniques and provision of assistive products) • Early stimulation for children 		<p>Prescription^c of swallow retraining techniques customized to the condition and individual</p> <p>Acute swallow management for inpatients</p> <p>Prescription^c of speech and communication techniques customized to the condition and individual</p> <p>Prescription^c of cognitive interventions customized to the condition and individual</p>
	Mechanical stabilization and assistive products	<p>Prosthesis review and referral to hospital if indicated</p> <p>Splinting and orthosis review and referral to hospital if indicated</p> <p>Upper limb positioning</p> <ul style="list-style-type: none"> • Slings • Casting <p>Provision and training in the use of assistive products, assistive technology, and compensatory strategies for</p> <ul style="list-style-type: none"> • Mobility, activities of daily living, and skin care • Vision loss (such as white canes, braille displays, magnification, and other aids) • Communication devices 	<p>Fabrication, fitting, and training in the use of a prosthesis^d</p> <p>Splinting and orthosis^e for upper limb, lower limb, and spine immobilization and stability</p> <p>Postoperative splinting and orthosis^e</p> <p>Compression therapy^f for postamputation management, burns, and vascular and lymphatic conditions</p> <p>Provision and training in the use of assistive products, assistive technology, and compensatory strategies for</p> <ul style="list-style-type: none"> • Hearing aids and hearing loops^d

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Table 15.1 Essential Package of Rehabilitation Interventions (continued)

Intervention area	Platform for delivery		
	Community ^a	Primary health center	Hospital ^b
Cross-cutting areas	Self-care training Early childhood development rehabilitation interventions (such as motor, sensory, and language stimulation) Environmental modifications (such as a grab rail or ramp installation)		Prescription ^c of self-care techniques customized to the condition and individual

Note: This table identifies a package of essential rehabilitation interventions that an effective rehabilitation system must be able to provide. The interventions selected are based on expert opinion from key stakeholders representing a broad range of rehabilitation disciplines.

- Interventions in red are considered acute and urgent.
- All interventions assigned to a given level also should be available at higher levels.
- Medications (such as pain medication to assist with pain management, and antispasmodic medication to assist with tone or spasticity) are not included here, but they may be essential adjuncts to these interventions.
- Interventions have been broadly categorized into intervention areas for the purposes of readability; however, substantial overlap exists in interventions between categories. For example, a person may require mobility training for musculoskeletal, cardiorespiratory, and neurological conditions; however, within the package it has been categorized under the musculoskeletal system intervention area.

A glossary of intervention terms is available in annex 15A.

a. The rehabilitation interventions in the community may need to be delivered by a specialized rehabilitation provider, whereas others may be delivered by generalist community-health workers or other care providers. The level of skill required of the provider depends on the complexity of a person's needs. Where warranted, interventions should be done under the prescription or supervision of a specialized rehabilitation provider based in the community or in the hospital setting.

b. Hospital-based rehabilitation interventions, in first-level and third-level hospitals, are highly variable across countries. Thus, first-level and third-level hospitals are considered as a single delivery setting for the purposes of this package.

c. A rehabilitation prescription is the provision of interventions customized for an individual's condition or specific needs, for ongoing self-management, or to be carried out by another provider. Education is provided to the individual and others involved in the individual's care to enable them to carry out the prescribed interventions safely and effectively. Such education may include instruction on correct technique, precautions, and specifications of the regime. Prescription and education usually require the input of a specialized rehabilitation provider.

d. This intervention also can occur in outpatient settings, although it usually takes place in hospitals.

e. This intervention requires access to immobilizing materials (such as thermoplastic, casting, or locally sourced materials) and knowledge of fabrication and application principles, techniques, and precautions.

f. This intervention can be done only if the providers are adequately trained in compression bandaging or garment fitting and provision and only if they are aware of precautions and contraindications. It is usually provided in a specialist outpatient service setting (such as a burn unit, plastic surgery facility, or vascular clinic).

of interventions. Specialized rehabilitation providers include but are not limited to physiatrists, physiotherapists, occupational therapists, and speech and language pathologists, who together have the capability to provide interventions across the full scope of needs existing in populations. However, the availability of such a workforce is rare in countries where rehabilitation is young and underdeveloped. In such cases, the skills required to conduct basic-level rehabilitation interventions (those that do not require complex clinical reasoning and are compatible with foundational health knowledge, skills, and competencies) may be distributed across the existing health workforce by using transdisciplinary approaches and by developing or strengthening a mid-level rehabilitation workforce. Where possible, models of service delivery in which supervision or oversight by a rehabilitation professional is provided to less qualified providers can expand access to services while reducing the risk of inappropriate interventions.

The package does not indicate specific rehabilitation disciplines that will be held responsible for providing the interventions, so as to be applicable to a range of settings and levels of rehabilitation workforce capability. However, an underlying assumption exists that providers at the primary health center level will be generalists with minimal rehabilitation training, whereas hospital-based providers will have specialized training. Unlike other areas, rehabilitation interventions in the community may need to be delivered by a specialized rehabilitation provider, whereas others may be delivered by generalist community-health workers or other providers. In the Essential Package of Interventions, a broad spectrum of skills is required to deliver many of the interventions, largely dependent on the complexity of the needs of the person (such as the presence of comorbidities, the severity of the health condition, and other personal and environmental factors). The effectiveness of the interventions depends heavily on a

provider's skills, experience, and clinical reasoning. At a minimum, interventions need to be delivered on the basis of the person's underlying health condition; applying interventions irrespective of etiology can be both dangerous and ineffective.

Although interventions ideally should be customized to specific conditions and individual needs and goals (referred to as "prescriptions" in the package), the provision of rehabilitation should not be dependent on such an approach. Prescribing customized interventions requires a level of clinical reasoning that may be available by providers at the hospital level, but beyond the capabilities of a mid-level rehabilitation provider or generalist health worker in primary health centers or the community. In such instances, interventions can be delivered according to standardized protocols on the basis of presentation and condition. In the package, it is assumed that interventions delivered in the community may be delivered by providers capable of following preexisting standardized protocols for different presentations that, although not customized, can have great effect. Providers at the primary health center level, where a diagnosis may be more readily available, may be capable of delivering condition-specific interventions, but may not be able to customize them according to individual or complex needs.

Given the variability in training and level of specialization of the rehabilitation workforce in LMICs, for the sake of both quality and safety, countries and services must consider the competencies of their workforce (as well as other resource and contextual factors) when planning to implement the package. Annex 15A is a glossary that provides a brief description of the interventions that can be used to further guide decision making.

The interventions are organized across three service delivery platforms: community, primary health centers, and inpatient hospitals. Because of the substantial global variability in the rehabilitation capacity of first-level and referral hospitals, no differentiation is made between these settings. The service delivery platforms do not correspond with the providers' level of expertise; some community and primary health center-based interventions (such as recommendations for specific environmental modifications and cognitive interventions) should be delivered by specialist providers. The package reflects the necessity of providing rehabilitation in both the community and hospital settings. Delivery of the intervention is not restricted to the service delivery platform under which it is positioned; this positioning reflects only the intervention's typical point of delivery. In particular, the package has been targeted to low-resource health systems; systems with greater resource availability should aim to provide the most

comprehensive package of services possible at the most accessible level of the delivery.

Substantial evidence supports the provision of rehabilitation at the earliest possible stages and across the continuum of care: acute, subacute, and long-term care (Choi and others 2008; Parker, Sricharoenchai, and Needham 2013; Scivoletto, Morganti, and Molinari 2005; Stucki and others 2005). Depending on the etiology of their condition, people may need to access rehabilitation at any level of the health system and likely will continue to require services as they move in and between levels. Community-based services are necessary to ensure that those people requiring rehabilitation who are not in hospital systems (such as children with sensory and developmental conditions) are identified and receive early intervention. Provision of rehabilitation in hospitals (including acute wards) is similarly imperative to prevent complications, to speed recovery, and to link people to follow-up care beyond discharge (Stucki and others 2005).

AVAILABLE TOOLS TO INFORM REHABILITATION SYSTEM PLANNING

The WHO has developed tools to assist countries in strengthening rehabilitation in their health systems, including the following:

- **The WHO Rehabilitation System Assessment Tool¹**
The Rehabilitation System Assessment Tool comprises (1) a survey-based tool on system-wide rehabilitation capacity and (2) a field component that assesses the rehabilitation system performance. A clear understanding of the various elements of the rehabilitation system that are available and how the system is working is essential to inform which interventions should be offered and how best to deliver them.
- ***Rehabilitation in Health Systems***
The publication *Rehabilitation in Health Systems* outlines nine fundamental recommendations for strengthening rehabilitation in health systems (WHO 2017). The recommendations highlight the strong need for rehabilitation to be integrated across all levels of the health system, as well as the need for financial allocation to ensure sustainable, quality service delivery.

Further information on both resources, as well as others under development (such as a toolkit for rehabilitation development), is available at the WHO rehabilitation website: <http://www.who.int/disabilities/care/en/>.

PRIORITIES FOR ACTION

The following actions are key for policy makers seeking to strengthen and extend quality rehabilitation services:

- Establish education and certification pathways for dedicated rehabilitation providers.
- Ensure the availability of appropriately skilled rehabilitation providers in specialized inpatient settings.
- Include rehabilitation in national health plans and financing schemes.
- Ensure that health insurance (where it exists or is to be implemented) covers rehabilitation interventions.
- Integrate rehabilitation into both community- and hospital-based health services.
- Implement financial and procurement policies to ensure that high-quality assistive products (as well as training in their proper use) are available to all who need them.

Research Priorities

Critical gaps exist in the evidence base for rehabilitation. A substantial increase in research is urgently needed to guide priority setting for system planning and to increase the availability and effectiveness of rehabilitation services. Several of the research priorities included in the WHO's *Rehabilitation in Health Systems* (WHO 2017) are particularly pertinent to rehabilitation policy:

- Research to ascertain the cost benefit of rehabilitation
- Research to identify facilitators and barriers to accessing rehabilitation
- Research to enable a standardized measure of rehabilitation effect.

CONCLUSIONS

Given the increasing demand for rehabilitation around the world, the need to extend the availability of essential rehabilitation interventions is urgent. Commendable efforts in several LMICs demonstrate the feasibility of improving rehabilitation capacity and performance in resource-poor settings. The *DCP3* package of essential rehabilitation interventions is designed to help scale up rehabilitation services to reach those who need them most. The package is informed by expert consensus and the limited evidence base available. As further evidence emerges, future iterations may reflect changes to the package of interventions.

To have the greatest effect on population health, careful attention needs to be given to the systems that deliver rehabilitation services, the training and skills

of the rehabilitation workforce, and the financing and monitoring of rehabilitation delivery. Whereas rehabilitation plays a critical role in optimizing health outcomes, advances in the field have lagged those in other areas with comparable effects. Recognizing rehabilitation's contribution to improving functioning and the quality of life and its importance to the effectiveness of other health interventions is fundamental to correcting this disparity.

ANNEX

The annex to this chapter is as follows. It is available at <http://www.dcp-3.org/DCP>.

- Annex 15A. Glossary of Rehabilitation Intervention Terminology

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NOTES

World Bank Income Classifications as of July 2014 are as follows, based on estimates of gross national income (GNI) per capita for 2013:

- Low-income countries (LICs) = US\$1,045 or less
- Middle-income countries (MICs) are subdivided:
 - (a) lower-middle-income = US\$1,046 to US\$4,125
 - (b) upper-middle-income (UMICs) = US\$4,126 to US\$12,745
- High-income countries (HICs) = US\$12,746 or more.

1. The WHO Rehabilitation System Assessment tool is not publicly available but is provided by the WHO on request when appropriate. Contact details are located on the home page: <http://www.who.int/disabilities/care/en>.

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