From Primary to Tertiary Care: Implementing the WHO Package of Interventions for Rehabilitation

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Abstract

Rehabilitation is an essential component of health systems, yet access to comprehensive services remains highly inequitable, particularly in low- and middle-income countries (LMICs). To address the growing global burden of disability, the World Health Organization (WHO) introduced the Package of Interventions for Rehabilitation (PIR), a diagnosis-based framework outlining essential interventions, workforce competencies, and equipment needs across priority conditions. While comprehensive, the PIR does not prescribe models of care, raising important questions about implementation in resource-constrained settings. This mini-review examines how the PIR can be operationalized across primary, secondary, and tertiary levels of care through contextual adaptation, task sharing, and scalable workforce development. We suggest practical strategies for supporting early identification, continuity of care, and efficient resource utilization. A case example of amputation rehabilitation illustrates how PIR guidance can be translated into feasible service delivery and training models, demonstrating the PIR's potential to strengthen rehabilitation systems and advance equitable access within universal health coverage.

Keywords: Physical and Rehabilitation Medicine, Health Services, Delivery of Health Care, Developing Countries, Health Workforce, Global Health

DOI: https://doi.org/10.47391/JPMA.26-59

Introduction

Rehabilitation is a fundamental component of health systems, essential for optimizing function, promoting participation, and improving quality of life for individuals experiencing—or at risk of—disability. Globally, more than 2.4 billion people are estimated to require rehabilitation services, a need that continues to rise due to population ageing, improved survival from acute illness, and the growing burden of chronic disease and injury.[1] Despite this demand, access to rehabilitation remains highly inequitable, with the most pronounced gaps occurring in low- and middle-income countries (LMICs), where limited workforce capacity, constrained resources, and fragmented service delivery impede timely care.[2]

In 2023, the World Health Organization (WHO) introduced the Package of Interventions for Rehabilitation (PIR). It is an eight-module resource outlining essential rehabilitation interventions for twenty priority health conditions across seven disease areas.[3] The PIR provides diagnosis-based guidance on interventions, workforce competencies, and equipment requirements, supporting clinical decision-making, workforce planning, and policy development across diverse health systems.

While comprehensive, the PIR does not prescribe specific models of care or service delivery pathways. This raises important implementation questions in resource-limited settings: how can PIR guidance be operationalized where access to advanced diagnostics and technologies is limited, and can effective rehabilitation be delivered through contextually adapted approaches emphasizing foundational clinical skills, task sharing, and stratified levels of care?

The existing publications on the WHO PIR for Rehabilitation primarily describe its structure, scope, and alignment with global rehabilitation priorities. Only a few have examined how PIR can be translated into functional service delivery across health system levels. Most available literature focusses on policy endorsement or condition-specific content, with limited attention to practical implementation questions such as stratification of services, task sharing, and workforce deployment in constrained environments.

This mini review examines how the PIR can be operationalized across primary, secondary, and tertiary levels of care, with a focus on LMIC contexts. It demonstrates how the PIR can function not only as a clinical reference but as an implementation rehabilitation framework to strengthen rehabilitation systems and promote equitable access to care.

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Operationalizing the PIR Across Levels of Care

The PIR serves both as a clinical reference and as a strategic framework for health system planners, administrators, and educators. Its effective use depends on operationalization across primary, secondary, and tertiary levels of care, aligned with system capacity and population needs. Collectively, these level-specific applications illustrate how the PIR can be embedded within health system design rather than applied as a standalone tool.

Primary Care: Identification and Basic Intervention

At the primary care level, the goal is early identification of rehabilitation needs and delivery of basic interventions. Although access to rehabilitation at this level is critical for continuity of care, rehabilitation specialists are often unavailable. Task sharing has therefore emerged as a pragmatic strategy to expand service reach and support multidisciplinary collaboration.[4]

Within this context, the PIR supports non-specialist providers. Community health workers can identify individuals who may benefit from rehabilitation, while nurses and primary care physicians can recognize rehabilitation needs in order to provide education, initiate basic interventions, and facilitate referral. Although the PIR does not assign interventions to specific levels of care, it clarifies which conditions benefit from rehabilitation and the professional competencies required.

To address the constraints typical of low-resource primary care settings, the WHO developed the Basic Package of Interventions for Rehabilitation (Basic PIR).[5] This complementary tool supports task sharing through simplified screening questions, basic exercises, education strategies, and referral "red flags." Countries such as Ethiopia and Ukraine have used the Basic PIR to expand access to rehabilitation at the community level.[6]

Secondary Care: Specialized and Dedicated Intervention

As rehabilitation needs increase in complexity, secondary care becomes the primary setting for more intensive and time-dependent interventions. While rehabilitation professionals are more commonly available at this level, workforce shortages are often a challenge. This makes task sharing under specialist supervision an important strategy for managing demand.

An important requirement at the secondary level is the establishment of dedicated rehabilitation services. Unlike primary care, where rehabilitation is integrated into general clinical encounters, secondary care requires protected time, appropriate space, and specialized equipment. Many PIR-recommended interventions involve prolonged patient engagement, structured therapy sessions, and caregiver education, making dedicated rehabilitation units essential for consistent and effective care.[5]

Tertiary Care: Highly Specialized and Complex Intervention

At the tertiary level, rehabilitation focuses on complex conditions requiring advanced clinical expertise, interdisciplinary coordination, and, where available, technology-supported interventions. The PIR supports tertiary care by informing protocol development and ensuring that rehabilitation is systematically integrated into complex care pathways.

Ongoing education of non-rehabilitation specialists remains essential to promote early identification and appropriate referral. In addition, tertiary centers may use the PIR to guide service expansion, innovation, research, and quality improvement initiatives, including for conditions not yet explicitly included in the framework.

Integrating Care Across Levels

Stratifying rehabilitation services across primary, secondary, and tertiary levels enhances reach, efficiency, and continuity of care. This approach optimizes workforce utilization and resource allocation while supporting seamless progression from community-based identification to advanced tertiary management.

Table-1: Health System Integration of the WHO Package of Interventions for Rehabilitation.

Level of Care	Primary Role of PIR	Key Providers	Examples of PIR-Aligned Interventions
Primary Care	Identification of rehabilitation needs,Basic intervention, Referral	-Community health workers-Nurses-Primary Care physicians	Screening for functional limitations,Basic exercises, Patient education, Referral to a higher level of care
Secondary Care	Dedicated rehabilitation delivery	-Rehabilitation physicians-Therapists-Nurses	Structured therapy programmes, Caregiver training, Assistive device provision
Tertiary Care	Specialized and complex rehabilitation	-Multidisciplinary rehabilitation teams	Advanced functional training, Interdisciplinary care planning, Complex case management

Workforce Development and Training Using the PIR Framework

Global variation in rehabilitation education and training reflects differences in culture, health system organization, and resource availability. Within this heterogeneous landscape, the PIR provides a diagnosis-based, evidence-informed framework adaptable to workforce development, education, and service planning.

The PIR's twenty priority health conditions reflect a high global burden of disability and provide a pragmatic foundation for Physical and Rehabilitation Medicine (PRM) residency and fellowship curricula, particularly in settings where training programmes are newly established. Aligning education with these diagnoses ensures that core competencies are responsive to population needs while remaining adaptable to local constraints.

Beyond education, the PIR supports strategic workforce and service planning by delineating professional roles required for condition-specific interventions. This enables prioritization of rehabilitation services, allowing health systems to phase implementation in alignment with workforce availability and clinical demand. In settings with limited rehabilitation physicians, the PIR also facilitates task sharing and interprofessional education by guiding training for allied health professionals and non-PRM physicians.

Additionally, the PIR functions as an advocacy tool, reinforcing recognition of rehabilitation as an essential component of universal health coverage and supporting integration of rehabilitation principles into undergraduate medical education.

The workforce planning guided by the PIR should include therapists, rehabilitation assistants, and community-based providers, reflecting the multidisciplinary nature of effective rehabilitation. By defining competencies linked to priority conditions rather than professional titles, the PIR supports competency-based training models that can reduce fragmentation and promote shared responsibility across cadres. This approach also has implications for regulation and accreditation. It offers a reference for scope-of-practice definitions, training standards, and quality assurance mechanisms aligned with population needs.

Practical Application: Amputation Rehabilitation in Resource-Limited Settings

Application of the PIR to amputation rehabilitation illustrates its practical value in resource-limited settings. One example is the use of the PIR amputation module within the International Rehabilitation Forum's (IRF) Africa Fellowship training programme. This module outlines essential interventions across acute, post-acute, and pre- and post-prosthetic phases of care.

In low-resource environments, these interventions can be stratified into minimum essential and advanced services, aligning training and service delivery with available capacity. Core interventions, including contracture prevention, oedema management, residual limb care, pain control, mobility training, and functional independence can be delivered without advanced technology and across multiple levels of care.

Training grounded in this framework prepares fellows to build local rehabilitation teams using task sharing and to establish key professional partnerships. Dissemination of core content to surgeons, primary care providers, prosthetists, and nurses further enhances interdisciplinary coordination and continuity of care. While this example reflects a specific training context, similar principles can be applied across other PIR modules.

Conclusion

The growing global burden of disability demands rehabilitation systems that are scalable and responsive to local context. The WHO's PIR provides a robust diagnosis-based foundation, but its impact depends on effective implementation within real-world health systems. This mini review demonstrates that the PIR can be operationalized across primary, secondary, and tertiary levels of care through stratified service delivery, task sharing, and deliberate workforce development, particularly in LMIC settings.

By aligning rehabilitation services and training with priority health conditions, the PIR enables actionable planning, supports continuity of care, and optimizes workforce utilization. The amputation rehabilitation example illustrates how PIR guidance can be translated into practical, contextually appropriate training and service models without reliance on advanced technologies.

Ultimately, the PIR offers more than a catalogue of interventions. It provides a shared structure through which rehabilitation can be integrated into health systems worldwide, supporting equitable access and recognition of functional recovery as a core health outcome. The future work on this topic should evaluate real-world implementation outcomes, refine context-specific service models, and strengthen the evidence on

how PIR-informed rehabilitation systems influence functional outcomes and equity of access.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

References

1. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2021;396:2006-2017. doi: 10.1016/S0140-6736(20)32340-0.
2. World Health Organization. Rehabilitation 2030: A Call for Action. Meeting Report. February 6-7, 2017. Geneva: WHO Headquarters; 2017. Available from: https://www.who.int/docs/default-source/documents/health-topics/rehabilitation/call-for-action/rehab2030meetingreport_plain_text_version.pdf Accessed 31st Dec 2025
3. World Health Organization. Package of Interventions for Rehabilitation. WHO; 2023. Available from: https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/rehabilitation/service-delivery/package-of-interventions-for-rehabilitation Accessed 31st Dec 2025
4. Fell B, Joseph C, Smythe T. Task shifting and task sharing for rehabilitation in primary care – A scoping review. Rehabilitation Advances in Developing Health Systems. 2025;2:32. doi: 10.4102/radhs.v2i1.32. World Health Organization. Basic Package of Interventions for Rehabilitation. WHO; 2023. Available from: https://cdn.who.int/media/docs/default-source/documents/health-topics/rehabilitation/basic-pir-info-sheet.pdf?sfvrsn=fed0bba3_4&download=true
5. World Health Organization. Basic Package of Interventions for Rehabilitation. WHO; 2023. Available from: https://cdn.who.int/media/docs/default-source/documents/health-topics/rehabilitation/basic-pir-info-sheet.pdf?sfvrsn=fed0bba3_4&download=true cited on 31st December, 2025.
6. Tannor A, Touhami D, Duttine A, Rauch A, Kleinitz P, Marks E, et al. Empowering Primary Care with the World Health Organization's Basic Package of Interventions for Rehabilitation: Developing a List of Interventions and a Clinical Resource, [Internet]. Research Square [Preprint]. 2025 Mar 5 [cited 31st Dec 2025]. [https://doi.org/10.21203/rs.3.rs-5607651/v1]