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Towards strengthening rehabilitation in health systems: Methods used to develop a WHO Package of Rehabilitation Interventions

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Running head

WHO Package of Rehabilitation Interventions

Title

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Towards strengthening rehabilitation in health systems: Methods used to develop a WHO Package of Rehabilitation Interventions

ABSTRACT

Achieving universal health coverage (UHC) is a World Health Organization (WHO) strategic priority. UHC means “all people receive quality health services that meet their needs without being exposed to financial hardship in paying for the services”. Rehabilitation is among the services included in UHC. As part of the WHO Rehabilitation 2030 call for action, WHO is developing its Package of Rehabilitation Interventions (PRI) to support ministries of health in planning, budgeting and integrating rehabilitation interventions into health systems. The aim of this paper is to introduce and describe the PRI and its methodology.

An advisory board composed of members from different WHO departments is overseeing the project, which is led by the WHO Rehabilitation Programme in collaboration with Cochrane Rehabilitation.

The development of the PRI is conducted in six steps: (1) Selection of health conditions (for which rehabilitation interventions will be included in the PRI) based on prevalences, related levels of disability and expert opinion; (2) identification of rehabilitation interventions and related evidence for the selected health conditions from clinical practice guidelines and Cochrane Reviews; (3) expert agreement on the inclusion of rehabilitation interventions in the PRI; (4) description of resources required for the provision of selected interventions; (5) peer review process, and (6) production of an open source web-based

tool. Rehabilitation experts and consumers from all world regions will collaborate in the different steps.

In developing the PRI, WHO is taking an important step towards strengthening rehabilitation in health systems and thus, enabling more people to benefit from rehabilitation.

Keywords

Rehabilitation; World Health Organization; Practice guideline; Delivery of health care; Evidence-based practice

Abbreviations

CPG	Clinical Practice Guideline
CSR	Cochrane Systematic Review
GBD	Global Burden of Disease
ICF	International Classification of Functioning, Disability and Health
PRI	Package of Rehabilitation Interventions
UHC	Universal Health Coverage
WHO	World Health Organization

INTRODUCTION

The World Health Organization (WHO) has defined the achievement of universal health coverage (UHC)[1] in its General Programme of Work 2019–2023[2] as one of its strategic priorities for meeting Sustainable Development Goal 3, “Ensure healthy lives and promote well-being for all at all ages”.

UHC means that “all people receive quality health services that meet their needs without being exposed to financial hardship in paying for the services”.[1] Rehabilitation is among those services that are included in UHC. With rising prevalence of noncommunicable and chronic diseases, ageing populations, and more people surviving injuries thanks to improved access to health care, global rehabilitation needs are high and expected to rise.[3] The gap between existing rehabilitation needs and access to rehabilitation is evident, particularly in low- and middle income countries.[4]

In 2017, rehabilitation stakeholders including international and professional organizations, nongovernmental organizations and academic institutions and WHO Member States launched the Rehabilitation 2030: A call for action.[5] This call includes ten key actions to strengthen rehabilitation in health systems.[6] As part of the WHO Rehabilitation 2030 call for action,[7] the WHO Rehabilitation Programme is starting to develop its Package of Rehabilitation Interventions (PRI). The PRI addresses some of the key actions by providing information that is required to strengthening rehabilitation planning and implementation at national and sub-national levels, facilitating the integration of rehabilitation into the health sector and UHC to effectively meet population needs. To achieve this, this package will provide a prioritized set of evidence-based interventions. It will furthermore provide information on resource requirements related to these interventions. This will facilitate the estimation of costs associated to the provision

of rehabilitation.

The PRI will support ministries of health in planning, budgeting and integrating rehabilitation interventions into all service delivery platforms and along the continuum of care, according to national needs and available resources. The selection of interventions needs to be evidence-based to ensure that effective rehabilitation coverage is achievable once the interventions are implemented in routine care.[8,9] The objective of this paper is to introduce the principles, phases and methods used for the development of the PRI.

METHODS

A stepwise approach comprising six consecutive phases will develop the PRI (see Figure 1). An advisory board composed of members of different WHO departments, including the WHO's Guideline Review Committee Secretariat, oversees the project, which is led by the WHO Rehabilitation Programme in collaboration with Cochrane Rehabilitation.[10] The WHO Rehabilitation Programme supports different working groups composed of health and rehabilitation professionals from different world regions at the different development steps. All participating health and rehabilitation professionals need to declare any potential conflict of interests by completing a declaration of interest form. Identified conflicts of interest preclude participation in the project.

ADD HERE: Figure 1: Overview of the development process

PHASE 1. SELECTION OF HEALTH CONDITIONS

Available evidence on rehabilitation interventions usually relates to specific health conditions, so a list of health conditions relevant to rehabilitation was the starting point for

the selection process. The selection of health conditions, conducted in summer 2018, was based on the disability statistics of the Global Burden of Disease (GBD) Study 2016,[11] and expert opinion on the following two criteria: 1) to be amenable to rehabilitation; and 2) to cover different disease areas (e.g. musculoskeletal, cardiovascular, nervous system). In addition, the level of disability associated with these health conditions, and prevalence estimates, were also considered.

First, two rehabilitation professionals screened the GBD report 2016[11] for health conditions amenable to rehabilitation and classified them according to broad disease type. Secondly, prevalence rates and disability weights[12] were considered, and conditions with higher prevalence and higher disability weights were selected. The International Alliance of Academics of Childhood Disability additionally consulted rehabilitation experts worldwide to suggest health conditions specifically relevant for rehabilitation in children and youth.

The list of identified health conditions was presented to experts from Cochrane Rehabilitation, the International Alliance of Academics of Childhood Disability, and to relevant WHO units. For some health conditions amenable and relevant to rehabilitation, such as spinal cord injury, data on prevalence rates are not reported in the GBD 2016. Experts felt very strongly that some of those health conditions should still to be included, and therefore were considered in the PRI. Table 1 presents the 20 health conditions included as well as the criteria used for their inclusion. It is important to mention that this list is not exhaustive and that additional health conditions will be considered in the future.

ADD HERE: Table 1: Health conditions included in the Package of Rehabilitation Interventions

PHASE 2. IDENTIFICATION OF INTERVENTIONS AND BEST EVIDENCE

The PRI aims to provide information on rehabilitation interventions for which evidence is available. In phase 2, shortly referred to as “Best Evidence for Rehabilitation (be4rehab)”, the required evidence will be identified.

High-quality clinical practice guidelines (CPGs), providing a synthesis of evidence and clinical expertise, are used as the basis for identifying relevant interventions to include in the PRI. Evidence from Cochrane Systematic Reviews (CSRs), available for the interventions identified from the CPGs, will complement the available body of evidence.

Identification of interventions and evidence from clinical practice guidelines

A technical working group for each health condition is responsible for identifying high-quality CPGs and extracting the interventions and their corresponding evidence. Technical working groups are composed of at least one expert in rehabilitation of the specific health condition and two researchers, representing at least two different rehabilitation professions. For quality assurance and consistency, two methodology experts from the WHO Rehabilitation Programme and Cochrane Rehabilitation support each technical working group and check each step of the CPG selection and data extraction.

Search strategy

Systematic literature searches are conducted in academic (PubMed, Embase, CINAHL, PEDro and others) and guideline databases; grey literature is searched through Google Scholar and professional rehabilitation society websites. Search strings will be composed of search terms defining the “health condition”, “rehabilitation” and “clinical practice guidelines”. Each technical working group will specify the search terms and adapt them

to the different sources. The methods experts will support each group and will also make sure that the different technical working groups apply comparable approaches. No age limitation is set for the search. Searches are limited to the most recent 10 years and English language sources. The language criterion was introduced for feasibility, but it is recognized that it could introduce a cultural bias. For this reason, technical working groups are encouraged to introduce any relevant CPG produced in the language of their members, provided that recommendations are translated into English should those particular CPGs be selected.

Literature screening

Two researchers independently conduct the title and abstract screening, as well as the full text screening. Manuscripts are excluded based on the exclusion criteria below and on agreement between the two researchers. In case of disagreement, a discussion will be held to reach consensus. A third researcher will be consulted if necessary. Exclusion criteria for title and abstract and full text screening are: “no CPG”, or “CPG not developed for the specific health condition”, “CPG not developed for rehabilitation”, “older than 10 years”, “not in English”, “potential conflict of interest, or with no conflict of interest statement”, and “missing information on the strength of recommendation”.

All CPGs included after full text screening are evaluated independently by two researchers for quality with the “Appraisal of Guidelines for Research and Evaluation” (AGREE II) tool.[13] For the identification of high-quality CPGs, items of the AGREE II most relevant to the PRI production have been identified (Table 2). CPGs with an average score of the two researchers less than 3 for items 4, 7, 12, or 22 or an average sum score of less than 45 for items 4, 7, 8, 10, 12, 13, 15, 22 and 23 will be excluded.

ADD HERE: Table 2: AGREE II items identified for the selection of high-quality clinical practice guidelines

Final selection of CPGs and data extraction

A maximum of five CPGs will be included for data extraction. In cases where they relate to children/youth, and adults, five for each age group will be included. The criteria to select CPGs in cases where more than five have been identified are: 1) a higher AGREE II score; 2) most recent or most recently updated; 3) relevant to different rehabilitation professions; and 4) more comprehensiveness in terms of number of functioning domains addressed. A standardized form is available for data extraction, which comprises information on the CPGs; reference to their recommendations, interventions and related outcomes; content and strength of the recommendations; and quality of evidence related to the recommendations.

Identification of evidence from Cochrane Systematic Reviews

For all the interventions identified from CPGs, available evidence from CSRs will complement the body of evidence. CSRs have been chosen because of their methodological quality that makes them a reliable evidence source of health interventions information.[14]

Search strategy:

CSRs on rehabilitation in the selected health conditions will be identified using the methodology developed by Cochrane Rehabilitation.[15] The current existing database is used and updated to include the most recent CSRs. CSRs providing evidence on rehabilitation interventions for adults and children and youth will be included. Searches

are limited to the most recent 10 years, and to research published in the English language.

Literature screening:

Two researchers will carry out title and abstract screening independently. CSRs will be excluded if they are older than 10 years, or they do not specifically address the targeted health condition and/or rehabilitation. Results of the researchers will be compared, and, if necessary, discussed to achieve consensus on the inclusion or exclusion of CSRs.

Data extraction:

Data extraction will be based on the Table of Findings (ToF) of each CSR: where this is not available, the original primary studies will be searched and the ToF prepared. Data will include information on the population, setting, interventions and related outcomes, study sample characteristics and statistical values for each of the analyses, and quality of the evidence.

Data preparation

For synthesizing data from the different CPGs, the International Classification of Functioning, Disability and Health (ICF)[16] will be used. Each reported outcome related to an intervention will be linked to an ICF category by applying existing linking rules.[17] All interventions and related information identified from the CPGs will then be organized according to these ICF categories. To complement data from CSRs, available information on the interventions identified from the CPGs will be selected from the CSRs data set. Again, the outcomes related to the interventions will be linked to ICF categories. Data from the CPGs and CSRs will then be synthesized in one data set according to ICF categories and interventions.

PHASE 3. SELECTION OF EVIDENCE-BASED INTERVENTIONS AND THEIR DELIVERY PLATFORMS

Development groups are established for each health condition. Members of a development group represent all relevant rehabilitation professions, all world regions (with a focus on low- and middle-income countries), and the consumer perspective. Their role is to agree the following: whether the identified interventions should be kept in the package; the service delivery platforms and importance upon which the selected interventions should be provided; and any relevant functioning area they consider missing.

Confirmation of interventions and identification of gaps

Members of a development group will agree on the interventions to be included in the PRI through a two-round Delphi process. The first round is carried out electronically and anonymously. Members of a development group individually evaluate the identified interventions based on all available information to be included in the PRI or not. They will also be requested to list any functioning area or intervention they consider missing. The second round will be conducted in group-discussions during one or more web conferences to achieve consensus on the interventions included and those missing.

Assignment to service delivery platforms and identification of gaps

Once the list of interventions has been decided, development group members will agree on the appropriate service delivery platform for each intervention, and whether they consider the intervention essential or optional. The discussions and corresponding decision will be carried out during web conferences. WHO Rehabilitation Programme will coordinate and moderate all web conferences.

PHASE 4. DESCRIPTION OF RESOURCE REQUIREMENTS

The description of resources required for delivering each intervention will include information on required assistive technologies, equipment, consumables, and types of required workforce competencies. A selection of members from the different development groups representing all rehabilitation professions will create these descriptions for each confirmed intervention. Therefore, interventions will be grouped into functioning areas. Rehabilitation professionals will be assigned to the functioning areas in which they have the appropriate expertise. Descriptions will be developed within these groups through email exchange and web conferences. The WHO Rehabilitation Programme will coordinate and moderate this process.

PHASE 5. PEER REVIEW OF THE PACKAGE

Peer review groups representing rehabilitation experts from all world regions will be formed. They will be responsible for reviewing the draft package and will provide feedback and recommendations for revision. This information will be integrated before producing the first whole draft of the PRI. After the peer review process, each intervention included will be provided with an International Classification of Health Interventions code.[18]

PHASE 6. PRODUCTION OF THE ALPHA VERSION OF THE PRI

The Alpha version of the PRI is intended as an open source, web-based tool. Users will be able to navigate and use the package by selecting interventions either in relation to a specific health condition (e.g. all interventions available for stroke), or in relation to specific domains of functioning (e.g. all interventions available for the rehabilitation of cognitive functions). The Alpha version will be tested in countries for practicality and

user-friendliness. The revised alpha version will then be launched and disseminated globally.

DISCUSSION

Rehabilitation is part of UHC and should be incorporated into the package of essential services, along with prevention, promotion, treatment and palliative care.[7] WHO's Rehabilitation 2030 call for action has created awareness of the increasing need for rehabilitation, highlighted the role of rehabilitation in achieving Sustainable Development Goal 3, and called for global action to strengthen rehabilitation in health systems.[19] Concerted action is required to make rehabilitation available and affordable to all in times of increasing rehabilitative demands and large unmet needs.[20] Special consideration should be given to countries with limited access to rehabilitation services when providing guidance in integrating rehabilitation into health systems.

National CPGs in low- and middle-income countries are often absent, and resources to develop and implement CPGs are in any case limited.[21] A few initiatives have already addressed the need for special guidance for low- and middle-income countries regarding rehabilitation, and have developed related resources such as the World Stroke Organization's Global Stroke Services Guidelines and Action Plan,[22] the International Council of Cardiovascular Prevention and Rehabilitation's rehabilitation delivery model for low-resource settings,[19] and the Global Spinal Care Initiative's work to apply evidence-based guidelines on the non-invasive management of back and neck pain to low- and middle-income countries.[21] For guidance in the planning and implementation of rehabilitation for many other health conditions there is a lack of resources. The PRI addresses this by providing access to evidence-based sets of interventions relevant to

people with health conditions and associated limitations in functioning that are applicable even in low- and middle-income countries.

The development of the PRI not only addresses the need for information on effective rehabilitation interventions but also the need for information on the resources required to implement the intervention. This information complements the PRI as it is relevant to plan and budget the implementation of rehabilitation in health systems. To address the situation of low-, middle-, and high-income countries, stakeholders from all WHO regions and from countries at all income levels will be involved. They need to take into account country-specific needs when deciding whether interventions included in the PRI are essential or optional.

It is expected that the PRI will not only support ministries of health to plan and budget for integrating rehabilitation in health systems, but also support researchers to design their research agendas, academics to develop curricula for the training of rehabilitation professionals, and health service providers to plan and implement interventions in their rehabilitation programmes.

Defining a package of rehabilitation interventions based on health conditions and not on functioning domains such as pain, muscle power or self-care may be controversial. However, since the evidence for interventions is usually reported linked to health conditions, it was necessary to design the development process of the PRI using health conditions as a starting point. Despite this, the final PRI will allow users to search not only for the interventions relevant for specific health conditions and their evidence, but also to search for interventions to treat specific functioning domains and their evidence.

Having these different access options does not limit the use of the PRI, it allows the use of the package in a more flexible manner depending on the purpose.

The selection of the health conditions was based on data from the GBD 2016. In late 2018, after the selection was completed, the new GBD 2017[25] was published. It is important to emphasize that the selection of health conditions would have not been different using the data of GBD 2017. The most prevalent conditions remained the same and injuries that are now reported in the GBD 2017 have been selected for the PRI based on expert opinion (amputation, fractures, spinal cord injury).

CPGs have been selected as the primary source for the identification of evidence as they present systematically developed best practice recommendations already based on syntheses of existing evidence. Furthermore, CPGs address evidence gaps through the creation of recommendations based on expert consensus procedures for these gaps. Use of the AGREE II instrument[26] ensures the selection of high-quality CPGs only. However, even the use of high-quality CPGs may still leave evidence gaps as even high-quality CPGs may not address all relevant rehabilitation areas. For some conditions, high-quality CPGs for rehabilitation may even be missing completely. Members of the development groups will be asked to identify these gaps and to define the essential areas that need to be addressed for the PRI. In future work, evidence will then be searched for these areas from systematic reviews to fill these gaps. The detection of the lack of comprehensive high-quality guidelines may also contribute to encourage the future development of CPGs for rehabilitation interventions.

LIMITATIONS

Some limitations in the development of the PRI need to be discussed. It is expected that the availability of high-quality CPGs will be limited for some of the 20 health conditions. Although this may impact the identification of interventions for the PRI, it will also hopefully encourage rehabilitation experts and researchers to increase efforts to develop high-quality CPGs in the future.

It is expected that most of the evidence identified from CPGs and Cochrane Systematic Reviews will not originate from low- and middle-income countries. To compensate for this, participation of rehabilitation experts from low- and middle-income countries in the selection of interventions to be included in the PRI is crucial in capturing the rehabilitation needs in those countries.

While for the first version of the PRI the selection of health conditions was limited to 20 health conditions (in the interests of feasibility), the selected health conditions cover a broad spectrum of people with rehabilitation needs and consider all ages, all relevant disease areas, and acute and chronic conditions. The selected health conditions are among those described in a recent study as potentially benefiting from rehabilitation.[27] The list is, however, not complete, and many health conditions associated with rehabilitation needs are not covered in this first version of the PRI. Future work will be necessary to expand the PRI to include more health conditions, and thus, more and more rehabilitation interventions.

CONCLUSION

The development of the PRI takes an important step to strengthen rehabilitation in health systems by providing information that contributes to the implementation of rehabilitation interventions that are relevant to people with health conditions, that are supported by

evidence of acceptable quality and that are applicable even in any income setting. The availability of the PRI will support ministries of health to plan and budget the integration of evidence-based rehabilitation into their health systems and thus, the achievement of UHC for rehabilitation will be supported. Most importantly however, more people in need will benefit from rehabilitation and be enabled to achieve their best possible level of functioning.

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Figure

Figure 1: Phases of the development of the Package of Rehabilitation Interventions

Tables

Table 1: Health conditions included in the Package of Rehabilitation Interventions

Table 2: AGREE II[8] items identified for the selection of high-quality clinical practice guidelines

Table 1: Health conditions included in the Package of Rehabilitation Interventions

Disease area	Health condition	Prevalence (in thousands)*	Disability weights†	Selection based on
Musculoskeletal disorders	Low back pain	511 048	0.020-0.372	GBD
	Osteoarthritis	301 567	0.023-0.165	GBD
	Rheumatoid arthritis	21 337	0.317-0.581	GBD
	Fractures	n.a.	n.a.	Expert opinion
	Amputation	n.a.	n.a.	Expert opinion
	Sarcopenia	n.a.	n.a.	Expert opinion
Neurological disorders	Cerebrovascular disease (Stroke)	79 574	0.019-0.525	GBD
	Alzheimer's disease and dementia	43 836	0.069-0.449	GBD
	Parkinson's disease	6 063	0.001-0.575	GBD
	Traumatic brain injury	n.a.	n.a.	Expert opinion
	Cerebral palsy	n.a.	n.a.	Expert opinion
	Spinal Cord Injury	n.a.	n.a.	Expert opinion
Cardiovascular diseases	Ischemic heart disease	153 533	0.033-0.179	GBD
Chronic respiratory diseases	Chronic obstructive pulmonary disease	251 631	0.019-0.408	GBD
Neoplasms	Cancer	42 986	0.049-0.540	GBD
Mental disorders	Schizophrenia	268 172	0.588-0.778	GBD
	Developmental intellectual disability	114 797	0.043-0.200	GBD
	Autism spectrum disorders	62 174	n.a.	GBD
Sensory impairments	Hearing loss	1 390 482	0.010-0.316	GBD
	Vision loss	1 009 472	0.017-0.187	GBD

GBD = Global Burden of Disease; n.a. = not available

* Available from Global Burden of Disease[9] report; †Available from Global Health Data Exchange[10]: The range covers disability weights from the mildest to the most severe condition

Table 2: AGREE II[8] items identified for the selection of high-quality clinical practice guidelines

Item	Description	Average score of the two researchers for each single item not less than 3	Average sum score of the two researchers for all items not less than 45
4	The guideline development group includes individuals from all relevant professional groups.	X	X
7	Systematic methods were used to search for evidence.	X	X
8	The criteria for selecting the evidence are clearly described.		X
10	The methods for formulating the recommendations are clearly described.		X
12	There is an explicit link between the recommendations and the supporting evidence.	X	X
13	The guideline has been externally reviewed by experts prior to its publication.		X
15	The recommendations are specific and unambiguous.		X
22	The views of the funding body have not influenced the content of the guideline.	X	X
23	Competing interests of guideline development group members have been recorded and addressed.		X

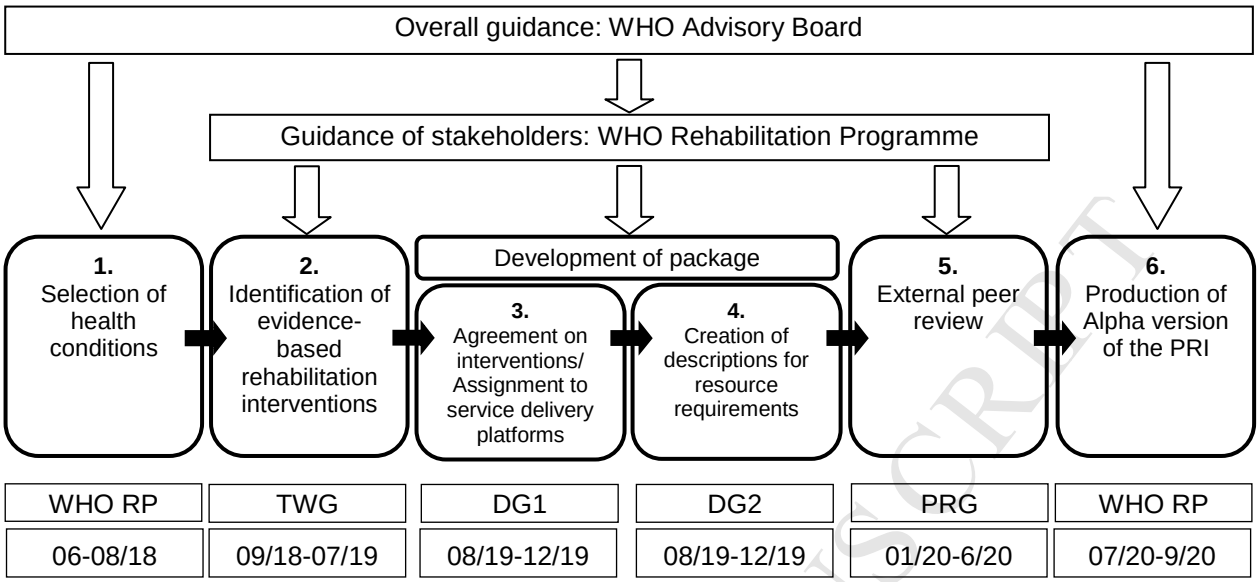

Figure 1: Phases and timeline of the development of the Package of Rehabilitation Interventions

WHO RP = World Health Organization Rehabilitation Programme; TWG = Technical Working Group; DG = Development Group; PRG = Peer Review Group