

Package of interventions for
Rehabilitation
Module 3
Neurological conditions



World Health
Organization

Package of interventions for rehabilitation

Module 3 Neurological conditions

Package of interventions for rehabilitation. Module 3. Neurological conditions

(Package of interventions for rehabilitation. Module 1. Introduction – Module 2. Musculoskeletal conditions – Module 3. Neurological conditions – Module 4. Cardiopulmonary conditions – Module 5. Neurodevelopmental disorders – Module 6. Sensory conditions – Module 7. Malignant neoplasm – Module 8. Mental health conditions)

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Package of interventions for rehabilitation for stroke

1.1 About stroke

Stroke is the second leading cause of death worldwide, and the third leading cause of death and disability combined (1). Strokes are usually acute events, mainly caused by a blockage that prevents blood from flowing to the brain. The most common reason for this is a build-up of fatty deposits on the inner walls of the blood vessels that supply the heart or brain. Strokes can also be caused by bleeding from a blood vessel in the brain or from blood clots (2). The reduced blood supply to the brain can cause transient symptoms (called transient ischemic attack, or TIA) or long-term brain damage, which can result in long-term impairments in several body functions, such as impaired cognitive, motor and visual functions, bladder and bowel dysfunction and swallowing difficulty. These conditions may in turn then contribute to the development of secondary conditions (3).

Strokes have a profound impact on individuals, their families and communities. People with stroke experience problems with perception, memory, language and communication, muscle power, muscle tone and motor control, and thus movement and mobility. Because of these impairments, independence in self-care activities, interactions with others, and participation in meaningful activities, such as work and social life, are often restricted. Due to the chronic course of stroke, people who have experienced stroke often require ongoing care, provided largely by informal carers. Challenges for carers include stress, role strain, financial burden, social isolation and bereavement in the event of loss of loved ones. Caring for a person with stroke may affect the carer's own health, well-being and social relationships.

Role of rehabilitation in stroke

It is estimated that in 2019, 86 million people worldwide were living with stroke and associated problems in functioning that could benefit from rehabilitation (4). Rehabilitation in stroke is progressive, dynamic and goal-orientated and aims to achieve and maintain optimal levels of functioning in people who have experienced a stroke. More specifically, it aims to enable people to reach their optimal physical, cognitive, emotional, communicative, and social activity levels through addressing impairments related to spasticity, upper and lower extremity dysfunction, shoulder and central pain, mobility/gait, dysphagia, vision, and communication (5). As stroke can cause continuing problems in subsequent years and decades (6), people living with stroke need lifelong access to rehabilitation services. Furthermore, rehabilitation aims to train and support carers and families by providing appropriate strategies to care for themselves.

Target population for the Package of interventions for rehabilitation for stroke

This *Package of interventions of rehabilitation for stroke* is intended to be used for adults who have experienced a stroke, including cerebral ischemic stroke (International Classification of Diseases, 11th revision (ICD-11): 8B11 Cerebral ischaemic stroke), intracerebral haemorrhage (ICD-11): 8B00 Intracerebral haemorrhage) or subarachnoid haemorrhage (ICD-11: 8B01 Subarachnoid haemorrhage) in acute, post-acute or chronic stage.

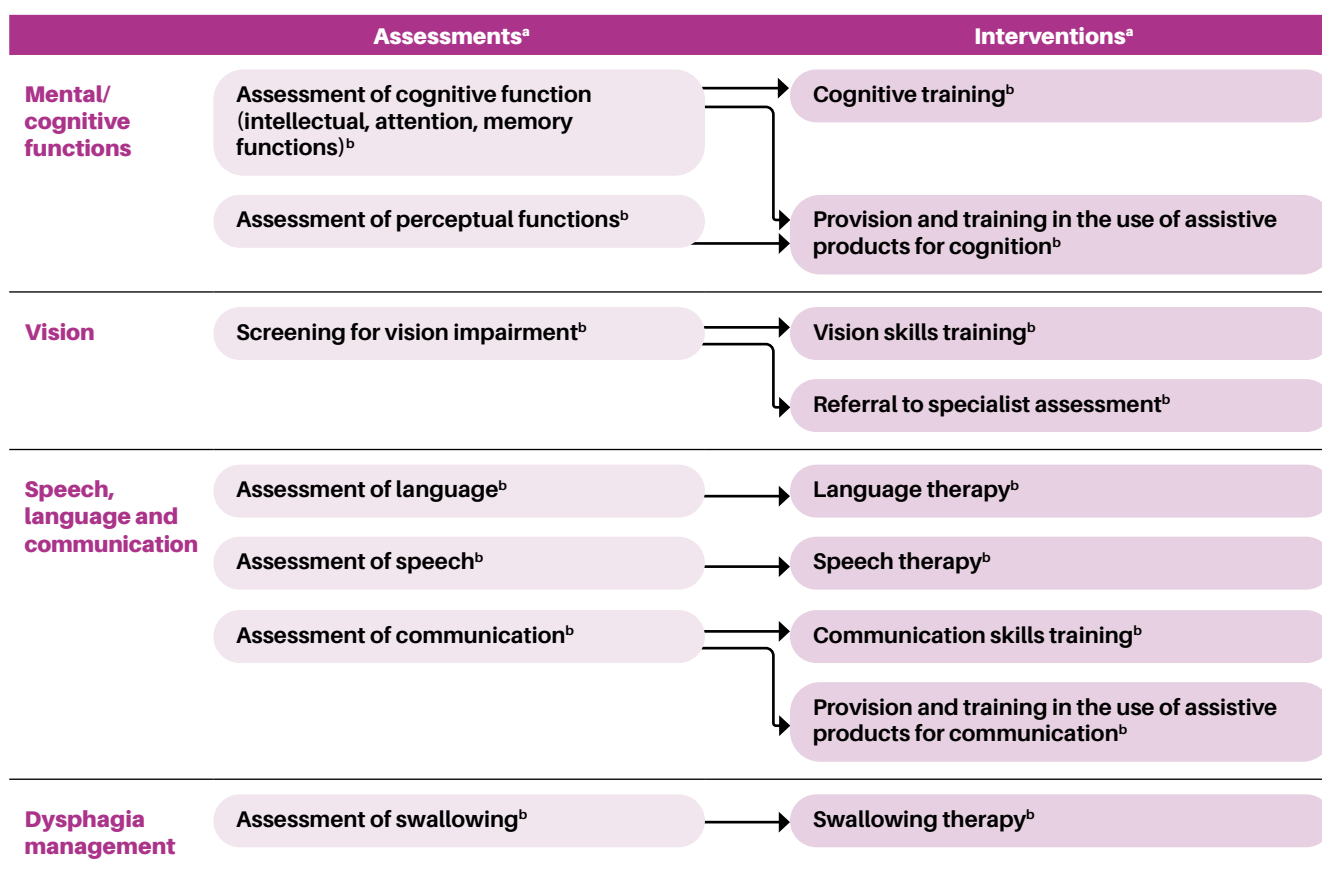
Important links to other WHO products relevant for the care of people with stroke:

- *Integrated care for older people: guidelines on community-level interventions to manage declines in intrinsic capacity (ICOPE) (7).*
- *mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0 (8).*
- *WHO Model List of Essential Medicines (9).*

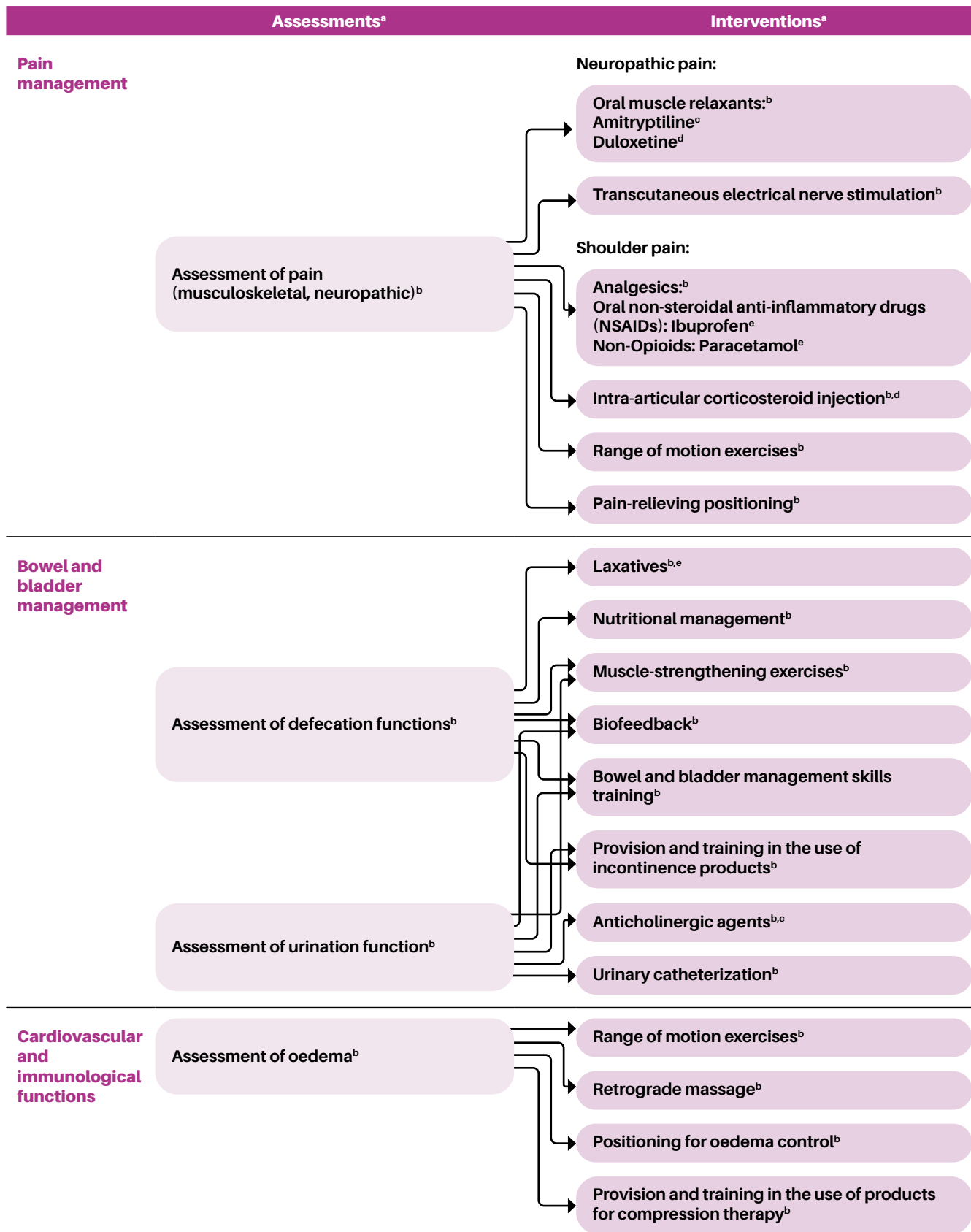
1.2 Content of the Package of interventions for rehabilitation for stroke

Overview of the interventions for rehabilitation in stroke

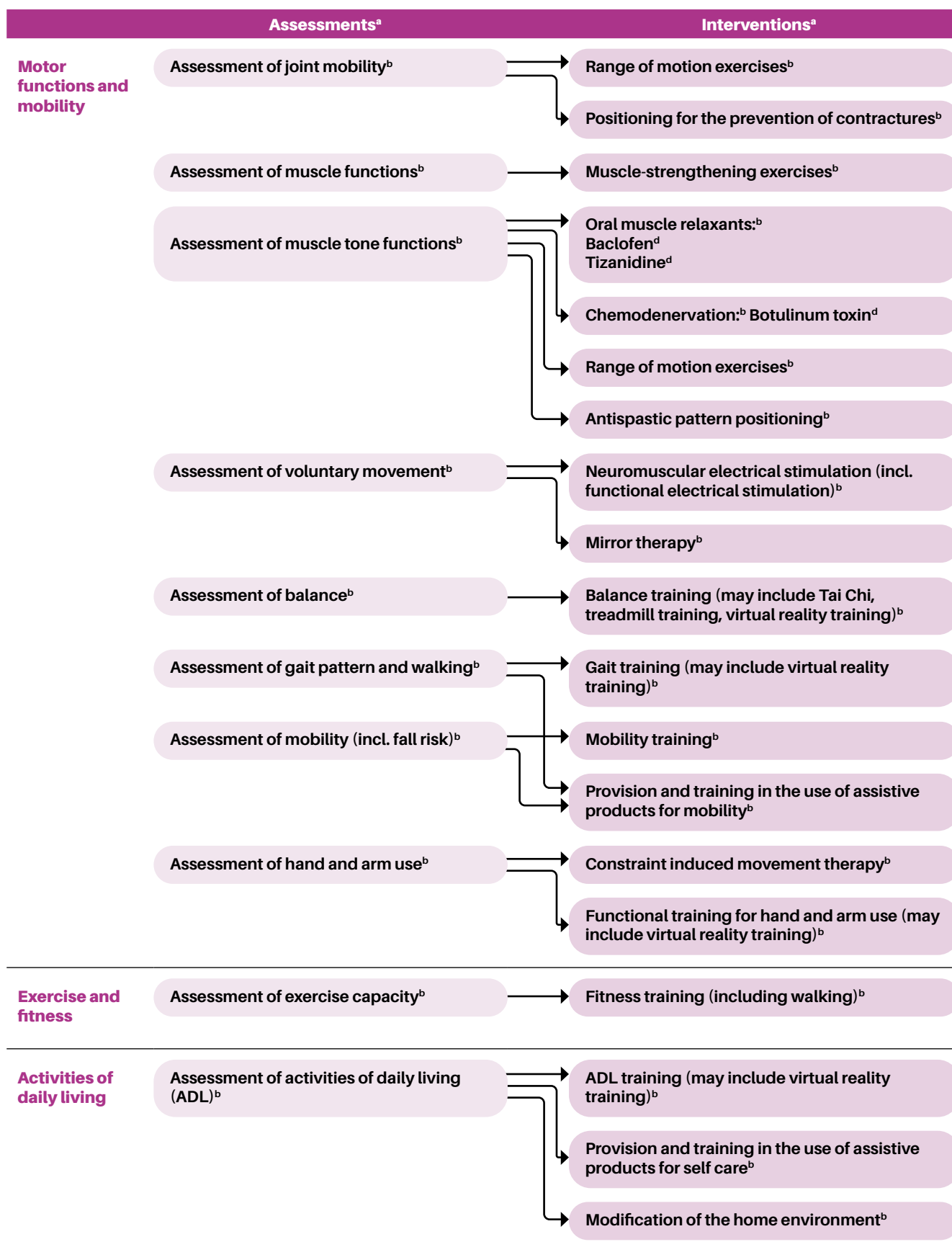
Functioning interventions



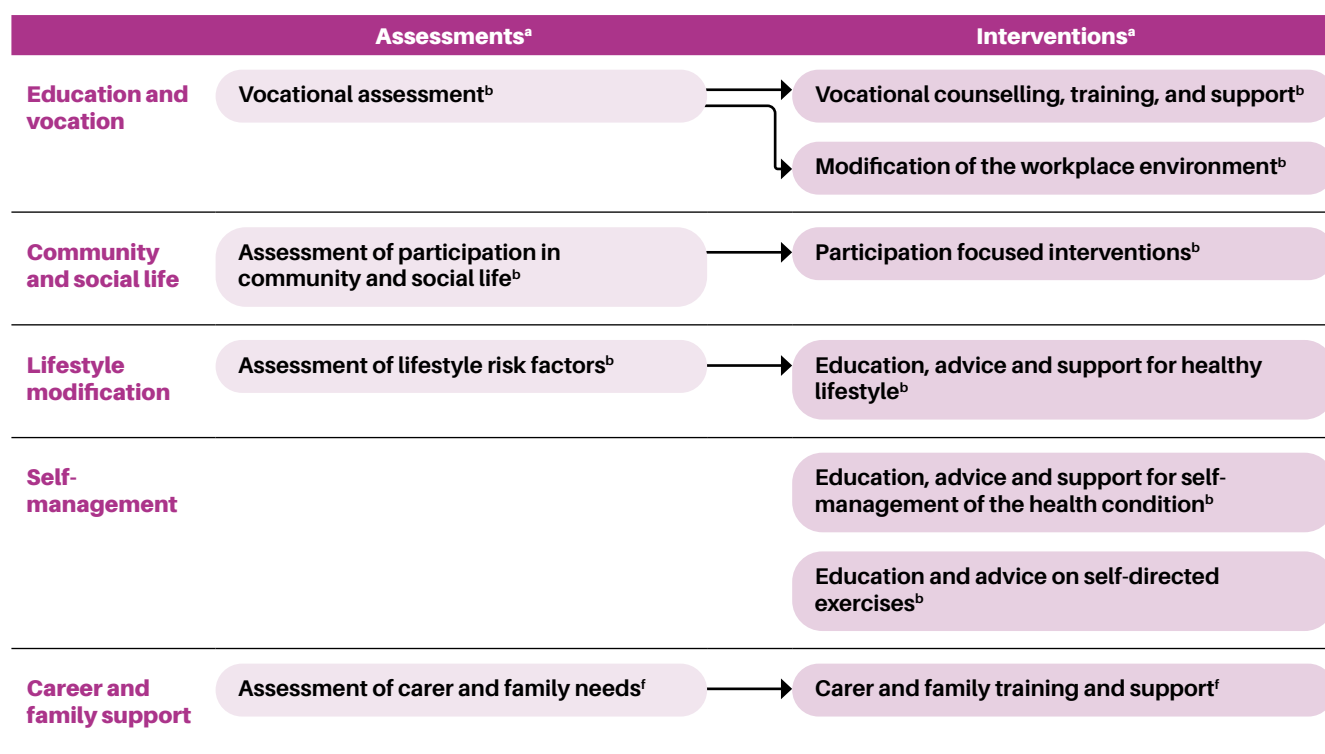
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^a See Annex 1 for definitions of assessments and interventions.

^b Adults with stroke.

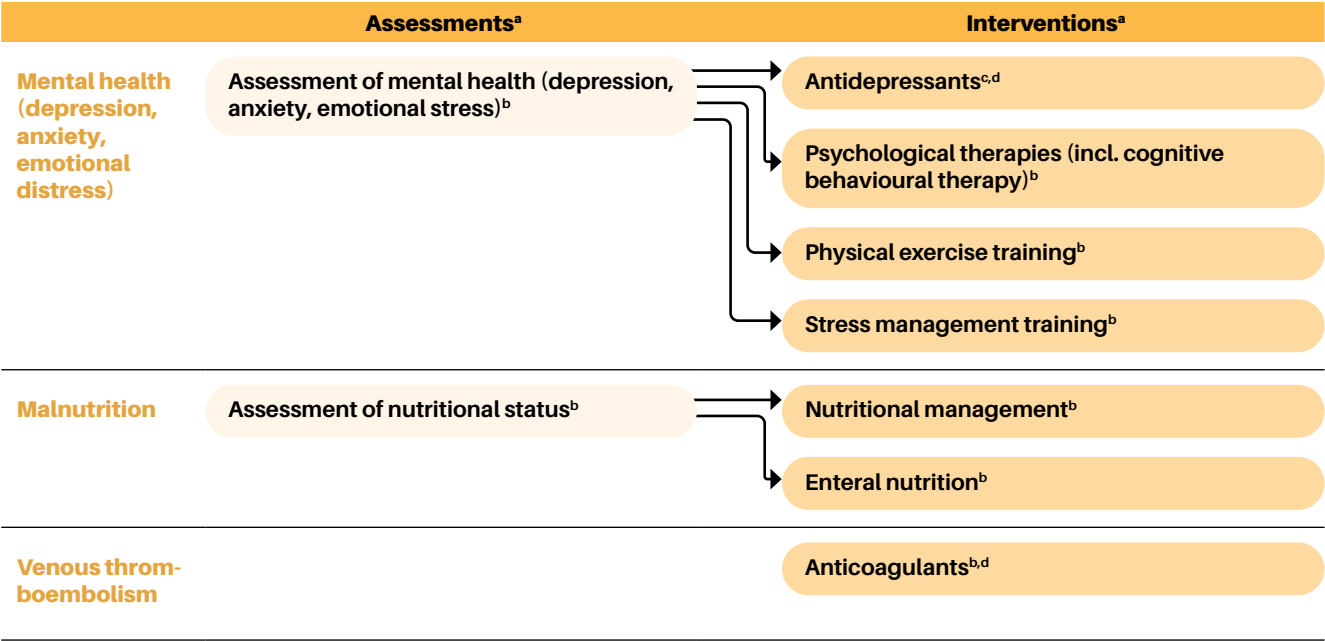
^c Medicine is included in WHO Model List of Essential Medicine (9) but for another indication.

^d Medicine has not yet been evaluated for inclusion in WHO Model List of Essential Medicine (9).

^e Medicines are included in WHO Model List of Essential Medicines (9).

^f Carers and family members of adults with stroke.

Interventions for the prevention and treatment of secondary conditions related to stroke



^a See Annex 1 for definitions of assessments and interventions.

^b Adults with stroke.

^c Adults with stroke and moderate to severe depression.

^d Medicines are included in WHO Model List of Essential Medicines (9).

Overview of the resources required for rehabilitation in stroke

Functioning interventions

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Target: Cognitive functions (intellectual, attention, memory functions)					
	Assessment of cognitive functions (intellectual, attention, memory functions)	60	-	<ul style="list-style-type: none">• Computer/tablets with software• Cognitive test equipment• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist• Specialist medical practitioner/PRM physician
	Cognitive training	30	-	<ul style="list-style-type: none">• Computer/tablets with software• Workbooks• Everyday objects• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist
	Provision and training in the use of assistive products for cognition	30	<ul style="list-style-type: none">• Recorders• Simplified mobile phones• Personal emergency alarm systems (PDA)• Pill organizers• Time management products• Memory aids	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist
	Target: Perceptual functions (visuospatial neglect)					
	Assessment of perceptual functions	20	-	<ul style="list-style-type: none">• Computer/tablets with software	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Vision	Target: Seeing functions					
	Screening for vision impairment	20	-	<ul style="list-style-type: none">• Vision screening charts for near and distance• Pinhole occluder• Measuring tape• Torch• Colour vision test chart	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Referral to specialist assessment	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Vision skills training	20	-	<ul style="list-style-type: none">• Computer/tablets with software• Reading materials and pictures	-	<ul style="list-style-type: none">• Occupational therapist
Speech, language and communication	Target: Cognitive functions of language (aphasia)					
	Assessment of language	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/ cards• Timer• Reading materials and pictures• Everyday objects/toys	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist
	Language therapy	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/ books/ cards• Timer• Reading materials and pictures• Everyday objects/(sound-making) toys	-	<ul style="list-style-type: none">• Speech and language therapist/pathologist
	Target: Speech functions (apraxia, dysarthria)					
	Assessment of speech functions	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Recorders (video and audio)• Timer• Mirror• Reading materials and pictures• Everyday objects	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Speech therapy	45	–	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Recorders (video and audio) • Timer • Mirror • Metronome • Reading materials and pictures • Everyday objects 	<ul style="list-style-type: none"> • Gloves • Straws • Tongue depressor • Tissues • Face masks 	<ul style="list-style-type: none"> • Speech and language therapist/pathologist
Target: Communication					
Assessment of communication	30	–	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Communication boards/ books/ cards • Recorders (video and audio) • Reading materials and pictures • Pointers 	–	<ul style="list-style-type: none"> • Occupational therapist • Speech and language therapist/pathologist
Communication skills training	45	–	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Communication boards/ books/ cards • Recorders (video and audio) • Simplified mobile phones • Reading materials and pictures, toys • Whiteboard • Pointers 	–	<ul style="list-style-type: none"> • Occupational therapist • Speech and language therapist/pathologist
Provision and training in the use of assistive products for communication	45	<ul style="list-style-type: none"> • Communication boards/ books/cards • Simplified mobile phones • Communication software • Recorders 	–	–	<ul style="list-style-type: none"> • Occupational therapist • Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Dysphagia management	Target: Swallowing functions					
	Assessment of swallowing	45	-	<ul style="list-style-type: none">• Flexible laryngoscopy equipment• Videofluoroscopic equipment• Lead apron• Thyroid shield• Suction machine• (Adapted) eating and drinking utensils (e.g. spoon, cup)	<ul style="list-style-type: none">• Food dye• Food and liquids with different consistencies• Oral swabs• Straws• Tongue depressor• Oral anesthetic spray• Iodinated contrast• Liquid and powder barium• Gloves	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Specialist medical practitioner/PRM physician• Speech and language therapist/pathologist
	Swallowing therapy	30	-	<ul style="list-style-type: none">• Spit basin• Suction machine• (Adapted) eating and drinking products• Blender• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Food thickeners• Modified liquids and solids• Straws• Dropper• Oral swabs• Gloves• Apron	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Speech and language therapist/pathologist
Pain management	Target: Sensation of pain (incl. musculoskeletal and central neuropathic pain)					
	Assessment of pain	30	-	-	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/PRM physician
	Target: Central neuropathic pain					
	Oral muscle relaxants	5	-	-	<ul style="list-style-type: none">• Amitryptiline• Duloxetine	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Transcutaneous electrical nerve stimulation (TENS)	10	-	<ul style="list-style-type: none">• TENS supply kit	<ul style="list-style-type: none">• Electrodes and alcohol swabs• Replaceable sticky electrode pads• Gel	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Target: Musculoskeletal pain (in particular shoulder pain)					
Analgesics	5	-	-	<ul style="list-style-type: none">• NSAIDs• Non-opioids	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician	

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Pain management	Intra-articular corticosteroid injections	20	-	-	<ul style="list-style-type: none"> • Corticosteroids • Alcohol wipes • Gloves • Needles and syringe 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Pain-relieving positioning	10	-	<ul style="list-style-type: none"> • Pillows • Foam rollers/wedges • Upper limb supports 	<ul style="list-style-type: none"> • Elastic bandages 	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Physiotherapist
	Range of motion exercises	15	-	<ul style="list-style-type: none"> • Treatment table 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Bladder and bowel management	Target: Defecation functions					
	Assessment of defecation functions	20	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Specialist medical practitioner/ PRM physician
	Laxatives	5	-	<ul style="list-style-type: none"> • Insertion devices for rectal medications 	<ul style="list-style-type: none"> • Laxatives • Lubricant • Gloves 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Nutritional management	30	-	-	<ul style="list-style-type: none"> • Nutritional supplements • Nutritional diary 	<ul style="list-style-type: none"> • Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/ PRM physician
	Target: Urination functions					
	Assessment of urination functions	20	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Specialist medical practitioner/ PRM physician
	Anticholinergic agents	5	-	-	<ul style="list-style-type: none"> • Anticholinergic agents 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Urinary catheterization	15	-	<ul style="list-style-type: none"> • Mirror • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Intermittent catheter kits • Indwelling catheter kit • Catheter bags • Gloves • Gel • Diapers • Medical tape 	<ul style="list-style-type: none"> • Nursing professional
Target: Defecation and urination functions					
Muscle-strengthening exercises (pelvic floor)	20	-	<ul style="list-style-type: none"> • Vaginal balls for Kegel exercises 	<ul style="list-style-type: none"> • Gloves • Lubricants 	<ul style="list-style-type: none"> • Nursing professional • Physiotherapist
Biofeedback	20	-	<ul style="list-style-type: none"> • Biofeedback device 	<ul style="list-style-type: none"> • Gloves • Lubricant • Pads/diaper • Tissues 	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Bowel and bladder management skills training	45	-	<ul style="list-style-type: none"> • Mirror • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Intermittent catheter kits • Catheter bags • Gloves • Gel • Diapers • Medical tape 	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Physiotherapist
Provision and training in the use of incontinence products	20	<ul style="list-style-type: none"> • Intermittent catheter kits • Indwelling catheter kits • Incontinence products (absorbent) 	-	-	<ul style="list-style-type: none"> • Nursing professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Cardiovascular and immunological functions	Target: Oedema control					
	Assessment of oedema	10	-	• Measuring tape	-	• Nursing professional • Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
	Range of motion exercises	15	-	• Treatment table	-	• Occupational therapist • Physiotherapist
	Retrograde massage	30	-	• Treatment table • Pillows • Foam rollers/wedges	• Compression bandages • Massage lotion	• Occupational therapist • Physiotherapist
	Positioning for oedema control	10	-	• Pillows • Foam rollers/wedges	-	• Nursing professional • Occupational therapist • Physiotherapist
	Provision and training in the use of assistive products for compression therapy	15	• Products for compression therapy (garments, sockets, bandages)	-	-	• Nursing professional • Occupational therapist • Physiotherapist
Motor functions and mobility	Target: Mobility of joint functions					
	Assessment of joint mobility	10	-	• Treatment table • Goniometer • Measuring tape	-	• Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
	Range of motion exercises	15	-	• Treatment table	-	• Occupational therapist • Physiotherapist
	Positioning for the prevention of contractures	10	• Orthoses, lower limb • Orthoses, upper limb (including splints) • Slings	• Pillows • Foam rollers/wedges • Orthoses kit • Splinting kit (static/dynamic)	-	• Occupational therapist • Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Muscle power functions					
Assessment of muscle functions	20	-	<ul style="list-style-type: none">• Treatment table• Handheld dynamometer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Muscle-strengthening exercises	20	-	<ul style="list-style-type: none">• Weights• Resistance bands• Exercise mat• Resistive exercise putty• Treatment table	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Target: Muscle tone functions					
Assessment of muscle tone functions	20	-	<ul style="list-style-type: none">• Treatment table• Reflex hammer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Oral muscle relaxants	5	-	-	<ul style="list-style-type: none">• Baclofen• Tizanidine	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Chemodenervation	30	-	<ul style="list-style-type: none">• Treatment table• Ultrasound scanner	<ul style="list-style-type: none">• Botulinum toxin• Gloves• Alcohol wipes• Needles and syringes• Ultrasound gel	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Range of motion exercises	15	-	<ul style="list-style-type: none">• Treatment table	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Antispastic pattern positioning	10	<ul style="list-style-type: none">• Orthoses, lower limb• Orthoses, upper limb (including splints)• Slings	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges• Orthoses kit	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
Target: Control of voluntary movement functions (motor control)					
Assessment of voluntary movement	15	-	<ul style="list-style-type: none">• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Neuromuscular electrical stimulation (incl. functional electrical stimulation)	30	–	<ul style="list-style-type: none"> • (Functional) electrical stimulation kit 	<ul style="list-style-type: none"> • Alcohol swabs • Replaceable sticky electrode pads • Gel 	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Mirror therapy	30	–	<ul style="list-style-type: none"> • (Mobile) mirror • Arm activity kit 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Target: Involuntary movement reaction functions (balance)					
Assessment of balance	20	–	<ul style="list-style-type: none"> • Timer • Exercise mat 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
Balance training (may include Tai Chi, treadmill training, virtual reality training)	20	–	<ul style="list-style-type: none"> • Standing frames, adjustable • Balance board/cushion • Exercise mat • Timer 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Target: Gait pattern functions and walking					
Assessment of gait pattern and walking	30	–	<ul style="list-style-type: none"> • Timer • Measuring tape • Parallel bar 	–	<ul style="list-style-type: none"> • Physiotherapist
Gait training (may include virtual reality training)	30	–	<ul style="list-style-type: none"> • Assistant support belt • Canes/sticks/tetrapod • Crutches, axillary/elbow • Mobile mirror • Parallel bar • Rollators • Training stairs • Walking frames/walkers (Virtual reality equipment) • (Treadmill) 	–	<ul style="list-style-type: none"> • Physiotherapist
Target: Mobility					
Assessment of mobility	30	–	<ul style="list-style-type: none"> • Transfer boards/slide sheet • Ramps (temporary/mobile) • Timer 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Mobility training	30	–	<ul style="list-style-type: none"> • Exercise mat • Cones • Ramps (temporary/mobile) • Steps (stackable) • Stools/small benches of varying height • Training stairs • Transfer boards/slide sheet 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Provision and training in the use of assistive products for mobility	30	<ul style="list-style-type: none"> • Canes/sticks/tetrapod • Rollators • Walking frames/walkers • Orthoses (lower limb) • Wheelchair (manual or electrical) • Front table (for wheelchair) • Pressure cushion • Tricycle (arm- or leg-powered) 	<ul style="list-style-type: none"> • Casting kit • Splinting kit (static/dynamic) • Orthoses kit • Measuring tape 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Target: Hand and arm use					
Assessment of hand and arm use	20	–	<ul style="list-style-type: none"> • Upper limb workstation • Utensils for activities of daily living 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Constraint induced movement therapy	60	–	<ul style="list-style-type: none"> • Socks • Mittens • Gloves • Arm activity kit • Casting kit • Splinting kit 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Functional training for hand and arm use (may include virtual reality training)	20	–	<ul style="list-style-type: none"> • Upper limb workstation • Utensils for activities of daily living 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Exercise and fitness	Target: Exercise tolerance functions					
	Assessment of exercise capacity	30	-	<ul style="list-style-type: none">• Timer• Cycle ergometer (arm or leg)• Heart rate monitor	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Fitness training (including walking)	30	-	<ul style="list-style-type: none">• Cycle ergometer (arm or leg)• Exercise mat• Resistance bands• Weights• Exercise ball• Timer	-	<ul style="list-style-type: none">• Physiotherapist
Activities of daily living	Target: Activities of daily living (ADL)					
	Assessment of ADL	30	-	<ul style="list-style-type: none">• Utensils for activities of daily living	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	ADL training (may include virtual reality training)	30	-	<ul style="list-style-type: none">• Utensils for activities of daily living• Assistive products for toileting• Adapted eating and drinking products• Assistive products for dressing• (Virtual reality equipment)	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Provision and training in the use of assistive products for self-care	30	<ul style="list-style-type: none">• Assistive products for toileting• Adapted eating and drinking products• Assistive products for dressing	-	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Modification of the home environment	60	<ul style="list-style-type: none">• Handrail/grab bars• Ramps portable• Portable commode for pit latrine• Alarm signallers with light/ sound/ vibration• Lightning control device	<ul style="list-style-type: none">• Measuring tape	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Education and vocation	Target: Work and employment					
	Vocational assessment	90	-	• Work-related tools and equipment	-	• Occupational therapist • Social work and counselling professional
	Vocational counselling, training, and support	60	-	• Work-related tools and equipment	-	• Occupational therapist • Social work and counselling professional
	Modification of the workplace environment	60	• Handrail/grab bar • Ramps, portable	• Measuring tape	-	• Occupational therapist • Physiotherapist
Community and social life	Target: Participation in community and social life					
	Assessment of participation in community and social life	20	-	-	-	• Occupational therapist • Social work and counselling professional
	Participation focused interventions	60	-	• Equipment for sport and recreational activities	-	• Occupational therapist • Physiotherapist • Social work and counselling professional
Lifestyle modification	Target: Healthy lifestyle					
	Assessment of lifestyle risk factors	20	-	• Measuring tape • Scale weight	-	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician
	Education, advice and support for healthy lifestyle	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Self-management	Target: Self-management					
	Education, advice and support for the self-management of the health condition	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Peer counsellor • Physiotherapist • Psychologist • Social work and counselling professional • Specialist medical practitioner/ PRM physician
	Education and advice on self-directed exercises	45	-	-	• Information materials (e.g. flyers, brochures)	• Occupational therapist • Physiotherapist
Carer and family support	Target: Carer and family support					
	Assessment of carer and family needs	30	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional
	Carer and family training and support	45	-	-	• Information materials (e.g. flyers, brochures)	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional

ADL: activity of daily living; NSAID: non-steroidal anti-inflammatory drug; PRM: physical and rehabilitation medicine; TENS: transcutaneous electrical nerve stimulation.

Interventions for the prevention and treatment of secondary conditions related to stroke

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental health	Target: Mental health (in particular depression, anxiety, emotional distress)					
	Assessment of mental health	60	-	-	-	• Specialist medical practitioner/ PRM physician • Psychologist
	Antidepressants	5	-	-	• Antidepressants	• Specialist medical practitioner/ PRM physician
	Psychological therapies (incl. cognitive behavioural therapy)	60	-	-	-	• Psychologist
	Physical exercise training	30	-	• Timer • Exercise mats • Resistance bands • Weights • Cycle ergometer (arm or leg)	-	• Physiotherapist
	Stress management training	30	-	-	-	• Psychologist
Malnutrition	Target: Malnutrition					
	Assessment of nutritional status	20		• Scale weight (wheelchair accessible) • Measuring tape	-	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/ PRM physician
	Nutritional management	30	-	-	• Nutritional supplements • Nutritional diary	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/ PRM physician
	Enteral nutrition	15	-	• Feeding machine (pump)	• Food thickeners • Nutritional supplements • Syringes • Feeding tubes	• Nursing professional • Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Deep venousthromboembolism	Target: Deep venous thromboembolism					
	Anticoagulants	5	-	-	<ul style="list-style-type: none">• Low-molecular-weight heparin (LMWH)• Unfractionated heparin (UFH)• Alcohol wipes	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

PRM: physical and rehabilitation medicine.

Summary of the required material resources and workforce

Material resources

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
Products for cognition <ul style="list-style-type: none"> • Alarm signallers with light/sound/vibration • Lightning control device • Memory aids • Personal emergency alarm systems (PDA) • Pill organizers • Recorders • Simplified mobile phones • Time management products 	Specific assessment equipment <ul style="list-style-type: none"> • Blood pressure measurement device • Cognitive test equipment • Colour vision test chart • Flexible laryngoscopy equipment • Goniometer • Hand-held dynamometer • Heart rate monitor • Lead apron • Measuring tape • Pinhole occluder • Reflex hammer • Torch • Thyroid shield • Ultrasound scanner • Videofluoroscopic equipment • Vision screening charts for near and distance • Scale weight (wheelchair accessible) 	<ul style="list-style-type: none"> • Alcohol wipes • Apron • Catheter bags • Compression bandages • Diapers • Dropper • Elastic bandages • Face masks • Food and liquids • Food dye • Food thickeners • Gel • Gloves • Indwelling catheter kits • Information materials (e.g. flyers, brochures) • Intermittent catheter kits • Iodinated contrast • Liquid and powder barium • Lubricant • Massage lotion • Medical tape • Modified liquids and solids • Needles and syringes • Nutritional diary • Oral anesthetic spray • Oral swabs • Pads/diapers • Replaceable sticky electrode pads • Straws • Tissues • Tongue depressor • Ultrasound gel
Products for communication <ul style="list-style-type: none"> • Communication boards/books/cards • Communication software 		
Products for self-care <ul style="list-style-type: none"> • Adapted eating and drinking products • Assistive products for dressing • Assistive products for toileting • Incontinence products (absorbent) • Indwelling catheter kits • Intermittent catheter kits • Portable commode for pit latrine • Products for compression therapy (garments, sockets, bandages) 	For interventions <ul style="list-style-type: none"> • Communication boards/books/cards • Computer/tablets with (communication) software • Whiteboard • Pointers • Reading materials and pictures • Workbooks • Metronome • Recorders (video and audio) • Simplified mobile phones • Assistive products for toileting • Assistive products for dressing • (Adapted) eating and drinking utensils • Blender • Utensils for activities of daily living • Everyday objects • Feeding machine (pump) • Spit basin • Suction machine • Insertion devices for rectal medications • Biofeedback device • Vaginal balls for Kegel exercises • Canes/sticks/tetrapod • Crutches, axillary/elbow 	
Products for mobility <ul style="list-style-type: none"> • Canes/sticks/tetrapod • Front table (for wheelchair) • Handrail/grab bars • Orthoses, lower limb • Orthoses, upper limb (including splints) • Pressure cushion • Ramps portable • Rollators • Tricycle (arm- or leg-powered) • Walking frames/walkers • Wheelchair (manual or electrical) 		Medicines <ul style="list-style-type: none"> • Amitriptyline • Anticholinergics • Antidepressants • Baclofen • Botulinum toxin • Corticosteroids • Duloxetine • Laxatives • Low-molecular-weight heparin • Non-opioids • NSAIDs • Nutritional supplements

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
	<ul style="list-style-type: none"> • Rollator • Walking frames/walkers • Standing frames, adjustable • Casting kit • Orthoses kit • Splinting kit (static/dynamic) • Foam rollers/wedges • Pillows • Transfer boards/slide sheet • Assistant support belt • Treatment table • (Functional) electrical stimulation kit • TENS Supply kit • Exercise balls • Exercise mats • Weights • Resistance bands • Resistive exercise putty • Balance board/cushion • Steps (stackable) • Parallel bar • Training stairs • Ramps (temporary/mobile) • Stools/small benches of varying height • Mobile mirror • Cycle ergometer (arm or leg) • Timer • Arm activity kit • Upper limb workstation • Upper limb supports • Mittens/socks • Equipment for sport and recreational activities • (Treadmill) • (Virtual reality equipment) • Work-related tools and equipment 	<ul style="list-style-type: none"> • Unfractionated heparin (UFH) • Tizanidine

NSAID: non-steroidal anti-inflammatory drug; TENS: transcutaneous electrical nerve stimulation.

Workforce

Overview of rehabilitation specialists qualified to deliver interventions for rehabilitation for stroke (in alphabetical order)

- Dietitians and nutritionists
- Nursing professionals
- Occupational therapists
- Physiotherapists
- Psychologists
- Social work and counselling professionals
- Specialist medical practitioners/PRM physicians
- Speech and language therapists/pathologists

PRM: physical and rehabilitation medicine.

1.3 Members of the working groups

The following experts have contributed to the development of the *Package of interventions for rehabilitation for stroke* along the different development steps and using the listed clinical practice guidelines and Cochrane systematic reviews. See Annex 2 for a summary of declarations of interest.

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Nicoline SCHIESS (Medical officer, Brain Health Unit, WHO Mental Health and Substance Use Department) provided valuable feedback relevant to the final development of the *Package of interventions for rehabilitation for stroke*.

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2

Package of interventions for rehabilitation for Parkinson disease

2.1 About Parkinson disease

Parkinson disease is a degenerative and progressive condition of the brain which is associated with motor symptoms (slow movement, tremor, rigidity, walking and imbalance), as well as a wide variety of non-motor symptoms (neuropsychiatric and autonomic symptoms, disorders of sleep and wakefulness, pain and other sensory disturbances) (1).

Parkinson disease profoundly impacts individuals, their families and communities. The motor and non-motor symptoms related to the condition have a huge impact on functioning in everyday life. Motor impairments, including involuntary movements (dyskinesias) and painful involuntary muscle contractions (dystonias), contribute to limitations in speech, mobility and thus restrictions in many areas of life (2). The extent of the limitations in functioning relates to the severity of the symptoms and complications; progression of the symptoms of functioning markedly decreases over time, often resulting in loss of independence and restricted participation in work and social life and reduced quality of life. With increasing loss of independence, people with Parkinson disease often require ongoing care, provided largely by informal carers. Challenges for carers include stress, role strain, financial burden, social isolation, and bereavement in the event of loss of loved ones. The roles and challenges may vary depending upon the age of the carer, and if the caring is for children, adolescents or older adults. Caring for a person with Parkinson disease may affect the carer's own health, well-being and social relationships.

Role of rehabilitation in Parkinson disease

It is estimated that in 2019, 3.9 million people worldwide were living with Parkinson disease and associated problems in functioning that could benefit from rehabilitation (3). Although Parkinson disease cannot be cured and is progressive, with drug treatment or surgical intervention (deep brain stimulation) and rehabilitation, the lives of people with the condition and their caregivers can be significantly improved, and the physical health, cognition, independence and participation, and well-being of the person with the disease can be optimized. While medication (in particular Levodopa/Carbidopa) is effective for improving most motor, and various non-motor, symptoms, no drugs have proven effective in slowing progression or even halting the neurodegenerative process of the disease (4). Furthermore, many medications and surgical resources may not be accessible, available or affordable in certain settings. Thus, in addition to medication, effective non-pharmacological interventions play an essential role in achieving and maintaining optimal levels of functioning.

Interventions for rehabilitation aim to improve, for example, motor symptoms, cognitive functions, speech and communication, as well to better cope with the symptoms of the

disease through applying compensatory strategies (including the use of assistive products and technologies). Thus rehabilitation supports people to maintain their mobility and independence, to communicate, and to interact and participate in meaningful work and social activities. Rehabilitation further aims to train and support carers and families by providing appropriate strategies to care for themselves.

Target population for the Package of interventions for rehabilitation for Parkinson disease

This *Package of interventions of rehabilitation for Parkinson disease* is intended to be used for adults with Parkinson disease at all levels of severity (ICD-11: 8A00.0 Parkinson disease).

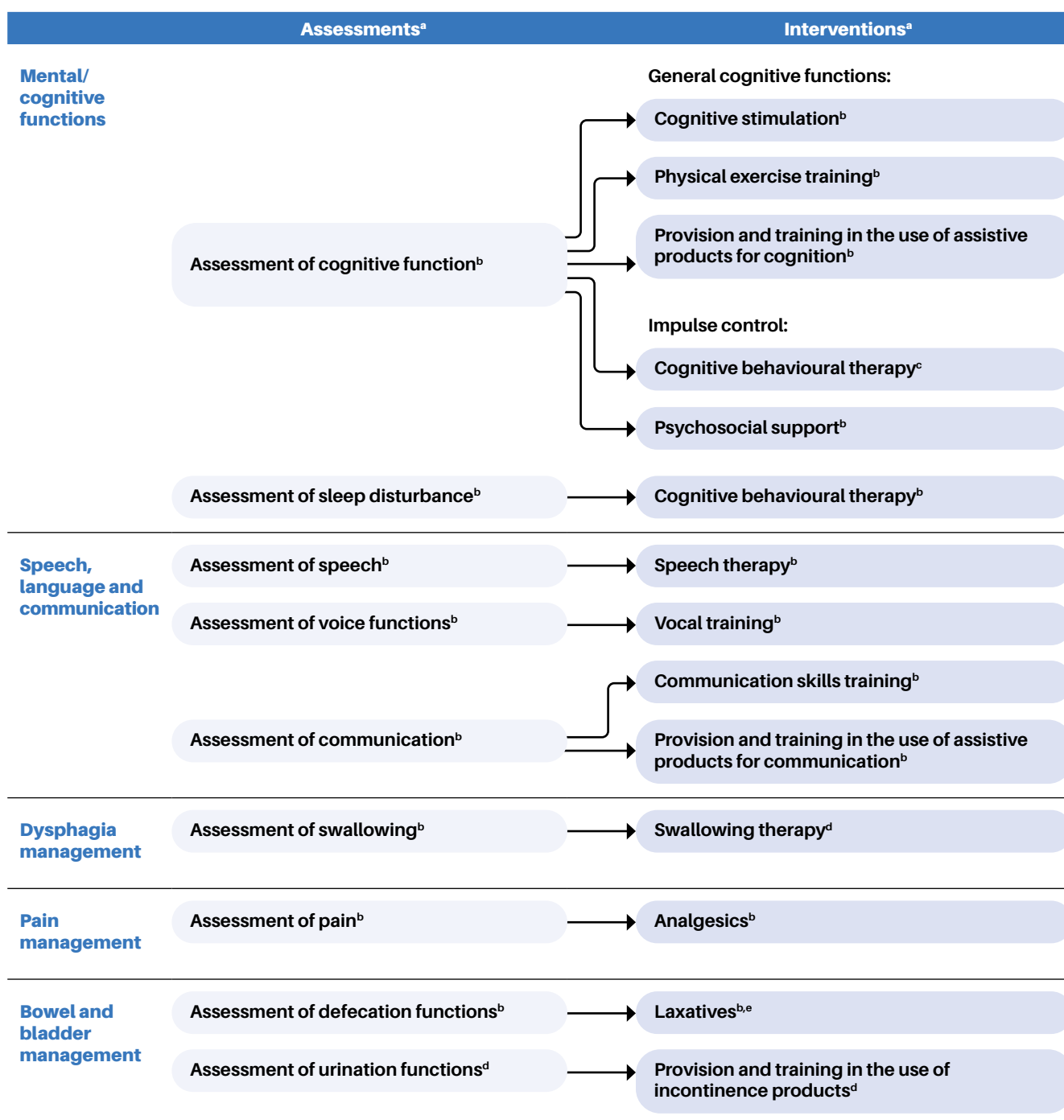
Important links to other WHO products relevant for the care of people with Parkinson disease:

- *Parkinson disease: a public health approach. Technical brief (4).*
- *Integrated care for older people: guidelines on community-level interventions to manage declines in intrinsic capacity (ICOPE) (5).*
- *iSupport for dementia. Training and support manual for carers of people with dementia (6).*
- *mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0 (7).*
- *WHO Model List of Essential Medicines (8).*

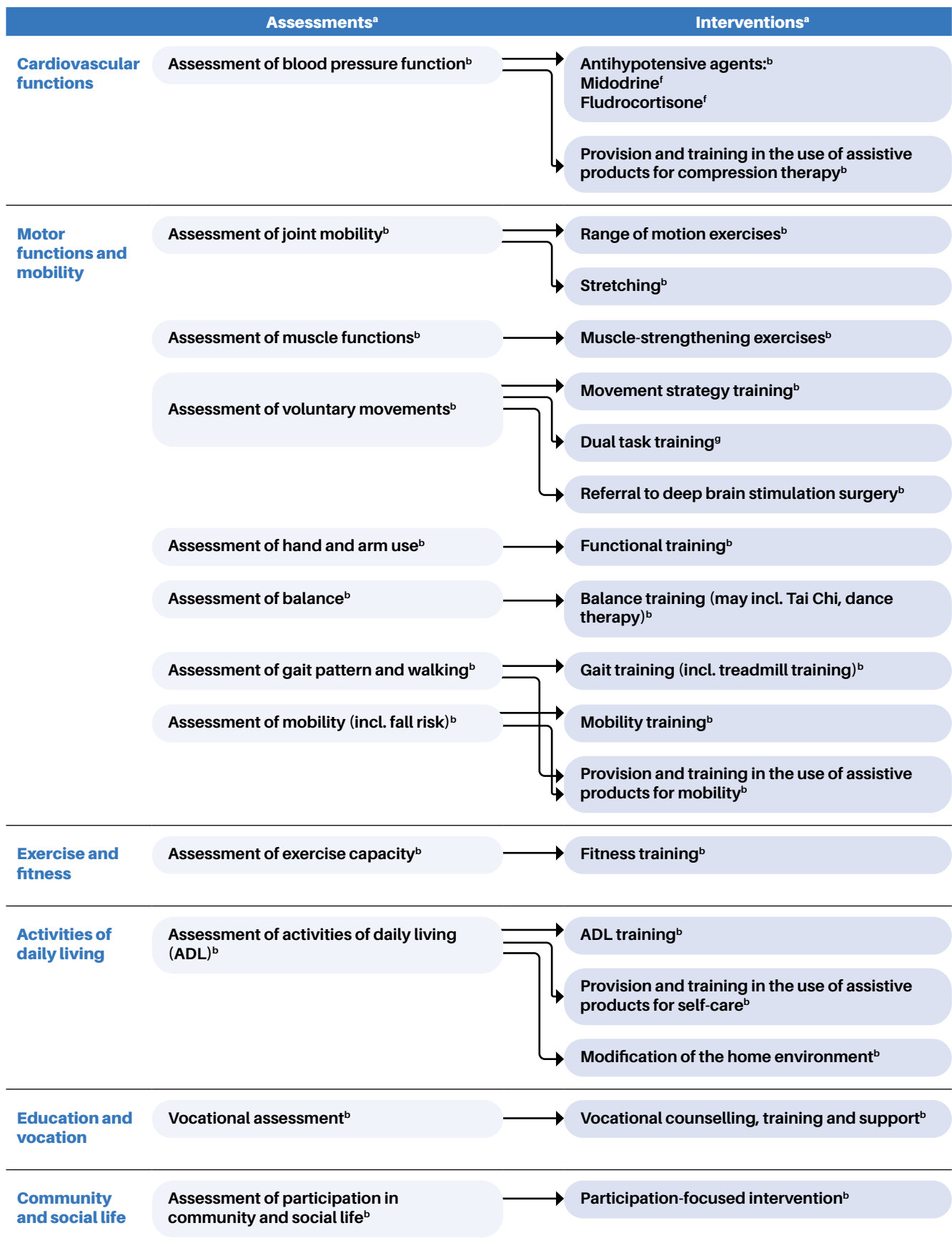
2.2 Content of the Package of interventions for rehabilitation for Parkinson disease

Overview of the interventions for rehabilitation in Parkinson disease

Functioning interventions



[cont.]



[cont.]

	Assessments ^a	Interventions ^a
Self-management		Education, advice and support for self-management of the health condition ^b
		Education and advice on self-directed exercises ^b
Carer and family support	Assessment of carer and family needs ^h	Carer and family training and support ^h

^a See Annex 1 for definitions of assessments and interventions.

^b Adults with Parkinson disease at all levels of severity.

^c Adults with severe levels of Parkinson disease.

^d Adults with moderate and severe levels of Parkinson disease.

^e Medicines are included in WHO Model List of Essential Medicines (8).

^f Medicine is included in WHO Model List of Essential Medicine (8) but for another indication.

^g Adults with mild and moderate levels of Parkinson disease.

^h Carers and family members of adults with Parkinson disease at all levels of severity.

Interventions for the prevention and treatment of secondary conditions related to Parkinson disease

	Assessments ^a	Interventions ^a
Mental health (depression, anxiety, emotional distress)	Assessment of mental health (depression, anxiety, emotional stress) ^b	Antidepressants ^{c,d}
		Psychological therapies (incl. cognitive behavioural therapy) ^b
		Physical exercise training ^b
		Stress management training ^b
Osteoporosis	Screening for osteoporosis ^b	Nutritional supplementation ^b

^a See Annex 1 for definitions of assessments and interventions.

^b Adults with Parkinson disease at all levels of severity.

^c Adults with Parkinson disease with moderate to severe depression.

^d Medicines are included in WHO Model List of Essential Medicines (8).

Overview of the resources required for rehabilitation in Parkinson disease

Functioning interventions

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Target: Cognitive functions					
	Assessment of cognitive functions	60	-	<ul style="list-style-type: none">• Computer/tablets with software• Cognitive test equipment• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist• Specialist medical practitioner/ PRM physician
	Cognitive stimulation	30	-	<ul style="list-style-type: none">• Reading materials• Media (incl. television, music player)• Everyday objects	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist
	Physical exercise training	30	-	<ul style="list-style-type: none">• Timer• Exercise mats• Resistance bands• Weights• Cycle ergometer (arm or leg)	-	<ul style="list-style-type: none">• Physiotherapist
	Provision and training in the use of assistive products for cognition	30	<ul style="list-style-type: none">• Simplified mobile phones• Personal emergency alarm systems (PDA)• Pill organizers• Time management products	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist
	Target: Impulse control					
	Cognitive behavioural therapy	60	-	-	-	<ul style="list-style-type: none">• Psychologist
	Psychosocial support	45	-	-	-	<ul style="list-style-type: none">• Psychologist
	Target: Sleep functions					
	Assessment of sleep disturbances	15	-	-	-	-
	Cognitive behavioural therapy	60	-	-	-	-

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Speech functions					
Assessment of speech functions	45	–	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Recorders (video and audio)• Timer• Mirror• Reading materials and pictures• Everyday objects	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Speech and language therapist/pathologist• Specialist medical practitioner/ PRM physician
Speech therapy	45	–	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Recorders (video and audio)• Timer• Mirror• Metronome• Reading materials and pictures• Everyday objects	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Speech and language therapist/pathologist
Target: Voice functions					
Assessment of voice functions	30	–	<ul style="list-style-type: none">• Voice amplifier• Sound level meter• Recorders• Timer• Flashlight• Reading materials and pictures	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist
Vocal training	30	–	<ul style="list-style-type: none">• Voice amplifier• Sound level meter• Recorders• Timer• Flashlight• Reading materials and pictures	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Speech, language and communication	Target: Communication					
	Assessment of communication	30	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/cards• Recorders (video and audio)• Reading materials and pictures• Pointers	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
	Communication skills training	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/cards• Recorders (video and audio)• Simplified mobile phones• Reading materials and pictures, toys• Whiteboard• Pointers	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
	Provision and training in the use of assistive products for communication	45	<ul style="list-style-type: none">• Communication boards/books/cards• Simplified mobile phones• Communication software• Voice amplifier	-	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
Dysphagia management	Target: Swallowing functions					
	Assessment of swallowing	45	-	<ul style="list-style-type: none">• Flexible laryngoscopy equipment• Videofluoroscopic equipment• Lead apron• Thyroid shield• Suction machine• (Adapted) eating and drinking utensils (e.g. spoon, cup)	<ul style="list-style-type: none">• Food dye• Food and liquids with different consistencies• Oral swabs• Straws• Tongue depressor• Oral anesthetic spray• Iodinated contrast• Liquid and powder barium• Gloves	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Specialist medical practitioner/PRM physician• Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
	Swallowing therapy	30	-	<ul style="list-style-type: none"> • Spit basin • Suction machine • (Adapted) eating and drinking products • Blender • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Food thickeners • Modified liquids and solids • Straws • Dropper • Oral swabs • Gloves • Apron 	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Speech and language therapist/pathologist
Pain management	Target: Sensation of pain					
	Assessment of pain	30	-	-	-	<ul style="list-style-type: none"> • Physiotherapist • Specialist medical practitioner/ PRM physician
	Analgesics	5	-	-	<ul style="list-style-type: none"> • Analgesics 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
Bowel and bladder management	Target: Defecation functions					
	Assessment of defecation functions	20	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Specialist medical practitioner/ PRM physician
	Laxatives	5	-	<ul style="list-style-type: none"> • Insertion devices for rectal medications 	<ul style="list-style-type: none"> • Laxatives • Gel • Gloves 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Target: Urination functions					
	Assessment of urination functions	20	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Specialist medical practitioner/ PRM physician
	Provision and training in the use of incontinence products	20	<ul style="list-style-type: none"> • Intermittent catheter kits • Indwelling catheter kits • Incontinence products (absorbent) 	-	-	<ul style="list-style-type: none"> • Nursing professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Cardiovascular functions	Target: Blood pressure functions (orthostatic hypotension)					
	Assessment of blood pressure functions	5	-	• Blood pressure measurement device	-	• Nursing professional • Specialist medical practitioner/PRM physician
	Antihypotensive agents • Midodrine • Fludrocortisone	5	-	-	• Midodrine • Fludrocortisone	• Specialist medical practitioner/PRM physician
	Provision and training in the use of assistive products for compression therapy	15	• Products for compression therapy (garments, stockings, bandages)	-	-	• Nursing professional • Occupational therapist • Physiotherapist
Motor functions and mobility	Target: Mobility of joint functions					
	Assessment of joint mobility	10	-	• Treatment table • Measuring tape • Goniometer	-	• Occupational therapist • Physiotherapist • Specialist medical practitioner/PRM physician
	Range of motion exercises	15	-	• Treatment table	-	• Occupational therapist • Physiotherapist
	Target: Muscle stiffness					
	Stretching	15	-	• Treatment table • Exercise mat	-	• Occupational therapist • Physiotherapist
	Target: Muscle power functions					
	Assessment of muscle functions	20	-	• Treatment table • Handheld dynamometer	-	• Occupational therapist • Physiotherapist • Specialist medical practitioner/PRM physician
Muscle-strengthening exercises	20	-	• Weights • Resistance bands • Exercise mat • Resistive exercise putty • Treatment table	-	• Occupational therapist • Physiotherapist	

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Voluntary movements					
Assessment of voluntary movements	15	–	• Timer	–	• Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
Movement strategy training	20	–	• Metronome • Timer • Measuring tape • Mirror	• Masking tape	• Occupational therapist • Physiotherapist
Dual task training	20	–	• Timer • Measuring tape	• Masking tape	• Occupational therapist • Physiotherapist
Referral to deep brain stimulation surgery	5	–	–	–	• Specialist medical practitioner/ PRM physician
Target: Hand and arm use					
Assessment of hand and arm use	20	–	• Upper limb workstation • Utensils for activities of daily living	–	• Occupational therapist • Physiotherapist
Functional training	20	–	• Upper limb workstation • Utensils for activities of daily living • Adapted writing products	–	• Occupational therapist • Physiotherapist
Target: Involuntary movement reaction functions (balance)					
Assessment of balance	20	–	• Timer • Measuring tape	–	• Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
Balance training (may incl. Tai Chi, dance therapy)	20	–	• Standing frames, adjustable • Balance board/cushion • Exercise mat • Timer	–	• Occupational therapist • Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Gait pattern functions and walking					
Assessment of gait pattern and walking	30	–	<ul style="list-style-type: none">• Timer• Measuring tape• Parallel bar	–	<ul style="list-style-type: none">• Physiotherapist
Gait training (incl. treadmill training)	30	–	<ul style="list-style-type: none">• Assistant support belt• Training stairs• Parallel bar• Canes/sticks/tetrapod• Crutches, axillary/elbow• Rollators• Walking frames/walkers• Metronome• Mobile mirror• (Treadmill)	<ul style="list-style-type: none">• Masking tape	<ul style="list-style-type: none">• Physiotherapist
Target: Mobility					
Assessment of mobility	30	–	<ul style="list-style-type: none">• Transfer boards/slide sheet• Ramps (temporary/mobile)• Timer	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Mobility training	30	–	<ul style="list-style-type: none">• Exercise mat• Cones• Ramps (temporary/mobile)• Steps (stackable)• Stools/small benches of varying height• Training stairs• Transfer boards/slide sheet	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Exercise and fitness	Provision and training in the use of assistive products for mobility	30	<ul style="list-style-type: none"> • Cane/sticks/tetrapod • Rollators • Walking frames/walkers • Slide sheet • Transfer boards • Wheelchair (manual or electrical) • Pressure cushion • Front table (for wheelchair) 	<ul style="list-style-type: none"> • Measuring tape 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Target: Exercise tolerance functions					
	Assessment of exercise capacity	30	-	<ul style="list-style-type: none"> • Timer • Cycle ergometer (arm or leg) • Heart rate monitor 	-	<ul style="list-style-type: none"> • Physiotherapist • Specialist medical practitioner/ PRM physician
	Fitness training	30	-	<ul style="list-style-type: none"> • Cycle ergometer (arm or leg) • Exercise mat • Resistance bands • Weights • Exercise ball • Timer 	-	<ul style="list-style-type: none"> • Physiotherapist
	Target: Activities of daily living (ADL)					
Activities of daily living	Assessment of ADL	30	-	<ul style="list-style-type: none"> • Utensils for activities of daily living 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	ADL training	30	-	<ul style="list-style-type: none"> • Utensils for activities of daily living • Assistive products for toileting • Adapted eating and drinking products • Assistive products for dressing 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Provision and training in the use of assistive products for self-care	30	<ul style="list-style-type: none"> • Assistive products for toileting • Adapted eating and drinking products • Assistive products for dressing 	-	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Physiotherapist
	Modification of the home environment	60	<ul style="list-style-type: none"> • Ramps • Handrails 	<ul style="list-style-type: none"> • Measuring tape 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Education and vocation	Target: Work and employment					
	Vocational assessment	90	-	• Work-related tools and equipment	-	• Occupational therapist • Social work and counselling professional
	Vocational counselling, training, and support	60	-	• Work-related tools and equipment	-	• Occupational therapist • Social work and counselling professional
Community and social life	Target: Participation in community and social life					
	Assessment of participation in community and social life	20	-	-	-	• Occupational therapist • Social work and counselling professional
	Participation focused interventions	60	-	• Equipment for sport and recreational activities	-	• Occupational therapist • Physiotherapist • Social work and counselling professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Self-management	Target: Self-management					
	Education, advice and support for self-management of the health condition	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Peer counsellor • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician • Social work and counselling professional
	Education and advice on self-directed exercises	45	-	-	• Information materials (e.g. flyers, brochures)	• Occupational therapist • Physiotherapist
Carer and family support	Target: Carer and family support					
	Assessment of carer and family needs	30	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional
	Caregiver and family training and support	45	-	-	• Information materials (e.g. flyers, brochures)	• Nursing professional • Occupational therapist • Physiotherapist • Social work and counselling professional • Psychologist

ADL: activity of daily living; PRM: physical and rehabilitation medicine.

Interventions for the prevention and treatment of secondary conditions related to Parkinson disease

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental health	Target: Mental health (in particular depression, anxiety, emotional distress)					
	Assessment of mental health	60	-	-	-	• Psychologist • Specialist medical practitioner/ PRM physician
	Antidepressants (for depression)	5	-	-	• Antidepressants	• Specialist medical practitioner/ PRM physician
	Psychological therapies (incl. cognitive behavioural therapy)	60	-	-	-	• Psychologist
	Physical exercise training	30	-	• Timer • Exercise mats • Resistance bands • Weights • Cycle ergometer (arm or leg)	-	• Physiotherapist
	Stress management training	30	-	-	-	• Psychologist
Osteoporosis	Target: Osteoporosis					
	Screening for osteoporosis	20	-	-	-	• Specialist medical practitioner/ PRM physician
	Nutritional supplementation	5	-	-	• Vitamin D • Calcium	• Dietitian and nutritionist • Specialist medical practitioner/ PRM physician

PRM: physical and rehabilitation medicine.

Summary of the required material resources and workforce

Material resources

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
Products for cognition <ul style="list-style-type: none"> • Personal emergency alarm systems (PDA) • Pill organizers • Simplified mobile phones • Time management products Products for communication <ul style="list-style-type: none"> • Communication boards/books/cards • Communication software • Voice amplifier Products for self-care <ul style="list-style-type: none"> • Adapted eating and drinking products • Assistive products for dressing • Assistive products for toileting • Incontinence products (absorbent) • Indwelling catheter kits • Intermittent catheter kits • Products for compression therapy (garments, stockings, bandages) Products for mobility <ul style="list-style-type: none"> • Cane/sticks/tetrapod • Rollators • Walking frames/walkers • Wheelchairs (manual or electrical) • Pressure cushions • Front tables (for wheelchair) • Transfer boards/slide sheets • Handrails • Ramps 	Specific for assessment <ul style="list-style-type: none"> • Blood pressure measurement device • Cognitive test equipment • Flashlight • Flexible laryngoscopy equipment • Goniometer • Handheld dynamometer • Heart rate monitor • Lead apron • Measuring tape • Sound level meter • Thyroid shield • Videofluoroscopic equipment For interventions <ul style="list-style-type: none"> • Communication boards/books/cards • Computer/tablets with (communication) software • Pointers • Reading materials and pictures • Recorders (video and audio) • Simplified mobile phones • Whiteboard • Voice amplifier • (Adapted) eating and drinking products • Assistive products for dressing • Assistive products for toileting • Everyday objects • Utensils for activities of daily living • Blender • Suction machine • Spit basin • Canes/sticks/tetrapod • Walking frames/walkers • Standing frames, adjustable • Rollators • Transfer boards/slide sheet • Assistant support belt • Pillows • Foam rollers/wedges • Treatment table • Resistance bands • Weights • Resistive exercise putty • Exercise ball • Exercise mats • Balance board/cushion 	<ul style="list-style-type: none"> • Apron • Dropper • Face masks • Food and liquids with different consistencies • Food dye • Food thickeners • Gel • Gloves • Information materials (e.g. flyers, brochures) • Insertion devices for rectal medications • Iodinated contrast • Liquid and powder barium • Masking tape • Modified liquids and solids • Oral anesthetic spray • Oral swabs • Straws • Tissues • Tongue depressor Medicines <ul style="list-style-type: none"> • Analgesics • Antidepressants • Calcium • Fludrocortisone • Laxatives • Midodrine • Vitamin D

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
	<ul style="list-style-type: none"> • Steps (stackable) • Training stairs • Stools/small benches of varying height • Balance board/cushion • Parallel bar • Metronome • (Mobile) mirror • Cycle ergometer (arm or leg) • Treadmill • Music player • Timer • Adapted writing products • Upper limb workstation • Equipment for sport and recreational activities • Work-related tools and equipment 	

Workforce

Overview of rehabilitation specialists qualified to deliver interventions for rehabilitation for Parkinson disease (in alphabetical order)

- Dietitians and nutritionists
- Nursing professionals
- Occupational therapists
- Peer counsellors
- Physiotherapists
- Psychologists
- Social work and counselling professionals
- Specialist medical practitioners/PRM physicians
- Speech and language therapists/pathologists

PRM: physical and rehabilitation medicine.

2.3 Members of the working groups

The following experts have contributed to the development of the *Package of interventions for rehabilitation for Parkinson disease* along the different development steps and using the listed clinical practice guidelines and Cochrane systematic reviews. See Annex 2 for a summary of declarations of interest.

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Nicoline SCHIESS (Medical officer, Brain Health Unit, WHO Mental Health and Substance Use Department) provided valuable feedback relevant to the final development of the *Package of interventions for rehabilitation for Parkinson disease*.

2.4 References

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7. mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0. Geneva; World Health Organization, 2016 (<https://apps.who.int/iris/handle/10665/250239>, accessed December 2022).
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3

Package of interventions for rehabilitation for traumatic brain injury

3.1 About traumatic brain injury

A traumatic brain injury is an injury to the head which affects how the brain works; it is caused by a bump, blow, or jolt, or a penetrating injury (e.g. gunshot). Key risk factors for traumatic brain injury due to, for example, road traffic injuries, include speeding, alcohol impairment, non-use of helmets, non-use of seat belts or child restraints, inadequate visibility of pedestrians and other road users, and inadequate enforcement of traffic laws. Globally, the annual incidence of traumatic brain injury is variably estimated at 27–69 million. Together with spinal cord injury, traumatic brain injury constitutes a considerable portion of the global injury burden and is caused primarily by falls and road injuries (1).

Traumatic brain injuries are categorized as: “mild or concussion”, “moderate”, or “severe”. Depending on the severity, health problems may last a few days (mild or concussion) or the rest of their lives (moderate to severe) (2). Symptoms related to traumatic brain injuries comprise, among others, physical problems (e.g. muscle function, coordination, pain), cognitive problems (e.g. perception, attention, concentration, memory), sensory problems (vision, hearing, touch), emotional problems (e.g. anxiety, depression), and behavioural problems (e.g. impulse and behavioural control). The type and severity of the symptoms relate to the severity of the damage of the injury.

Traumatic brain injury profoundly impacts individuals, their families and communities. The consequences cause disruption and stress to normal life, and thus challenge the entire family and social systems. The difficulties related to impairments caused by brain damage can have a long-term impact on their recovery to previous levels of functioning and quality of life (3). This includes the ability to be independent in daily living, to attain, or retain, meaningful activities, such as employment or education and participation in community and social life. Due to the chronic course of traumatic brain injury, people with such injury often require ongoing care provided largely by informal carers. Challenges for carers include stress, role strain, financial burden, social isolation, and bereavement in the event of loss of loved ones. Caring for a person with traumatic brain injury may affect the carer’s own health, well-being and social relationships.

Role of rehabilitation in traumatic brain injury

It is estimated that in 2019, 49 million people worldwide were living with the consequences of a traumatic brain injury that could benefit from rehabilitation (4). As the severity of such injury varies from mild to severe, interventions for rehabilitation need to be tailored to an individual’s level of functioning and goals. With severe cases, rehabilitation can be lifelong. Thus, rehabilitation is diverse in its treatment strategies targeting the symptoms experienced by an individual with the ultimate goal to achieve and maintain optimal levels of functioning. To achieve this, interventions in rehabilitation for traumatic brain injury address, among other

symptoms, impairments in cognitive and motor functions, sleep disturbances, visuospatial perception, and pain (particularly headache) (5). Rehabilitation helps people to develop strategies to compensate for loss of functions and achieve independence in mobility and daily living and engagement in meaningful activities such as education, work and employment and participation in community and social life. Furthermore, rehabilitation aims to train and support carers and families by providing the appropriate strategies to care for themselves.

Target population for the Package of interventions for rehabilitation for traumatic brain injury

This *Package of interventions of rehabilitation for traumatic brain injury* is intended to be used for children, adolescents and adults with traumatic brain injury at all levels of severity, in acute, post-acute or chronic stage (ICD-11: NA07 Intracranial injury).

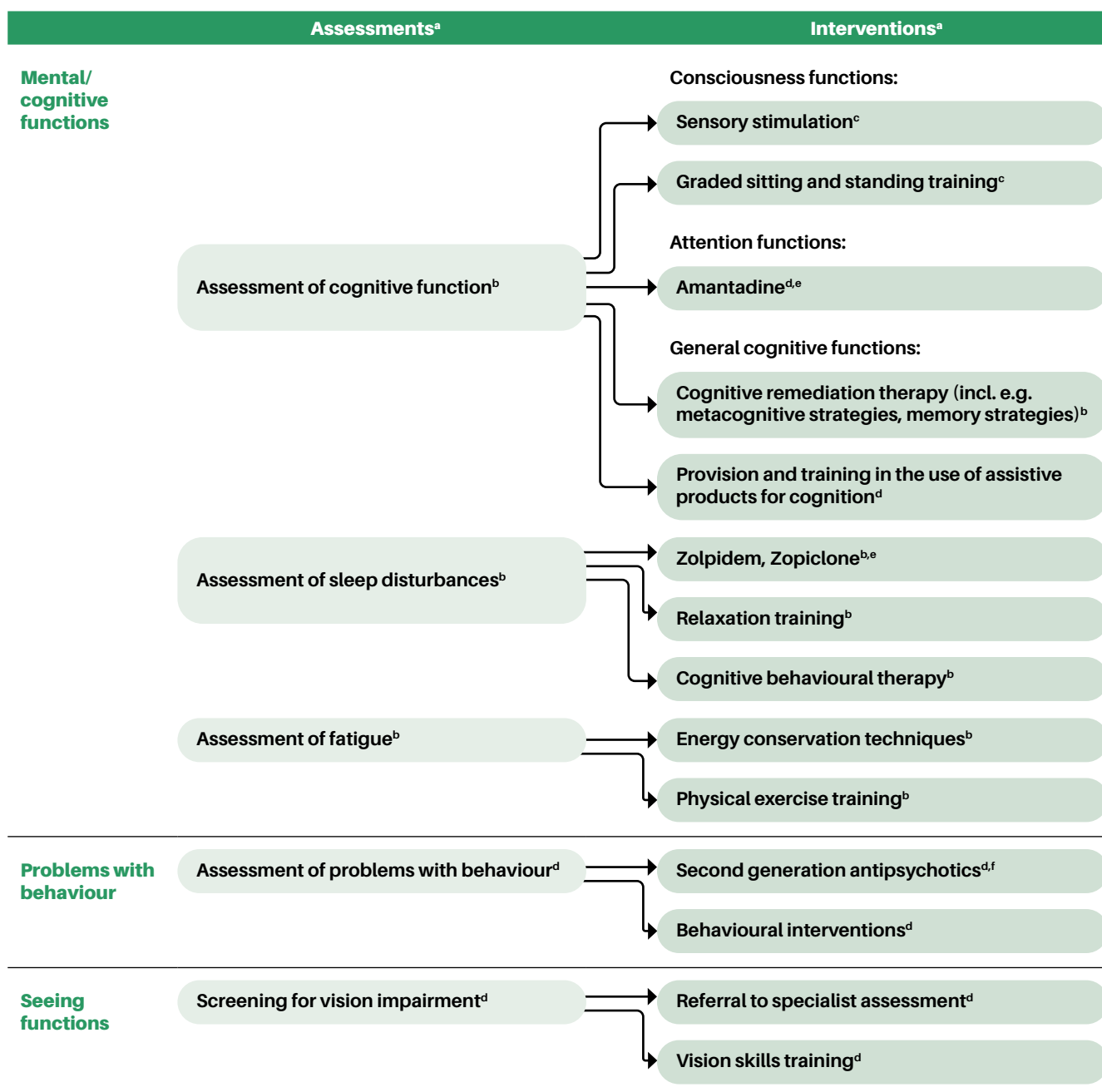
Important links to other WHO products relevant for the care of people with traumatic brain injury:

- *mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0* (6).
- *WHO Model List of Essential Medicines* (7).

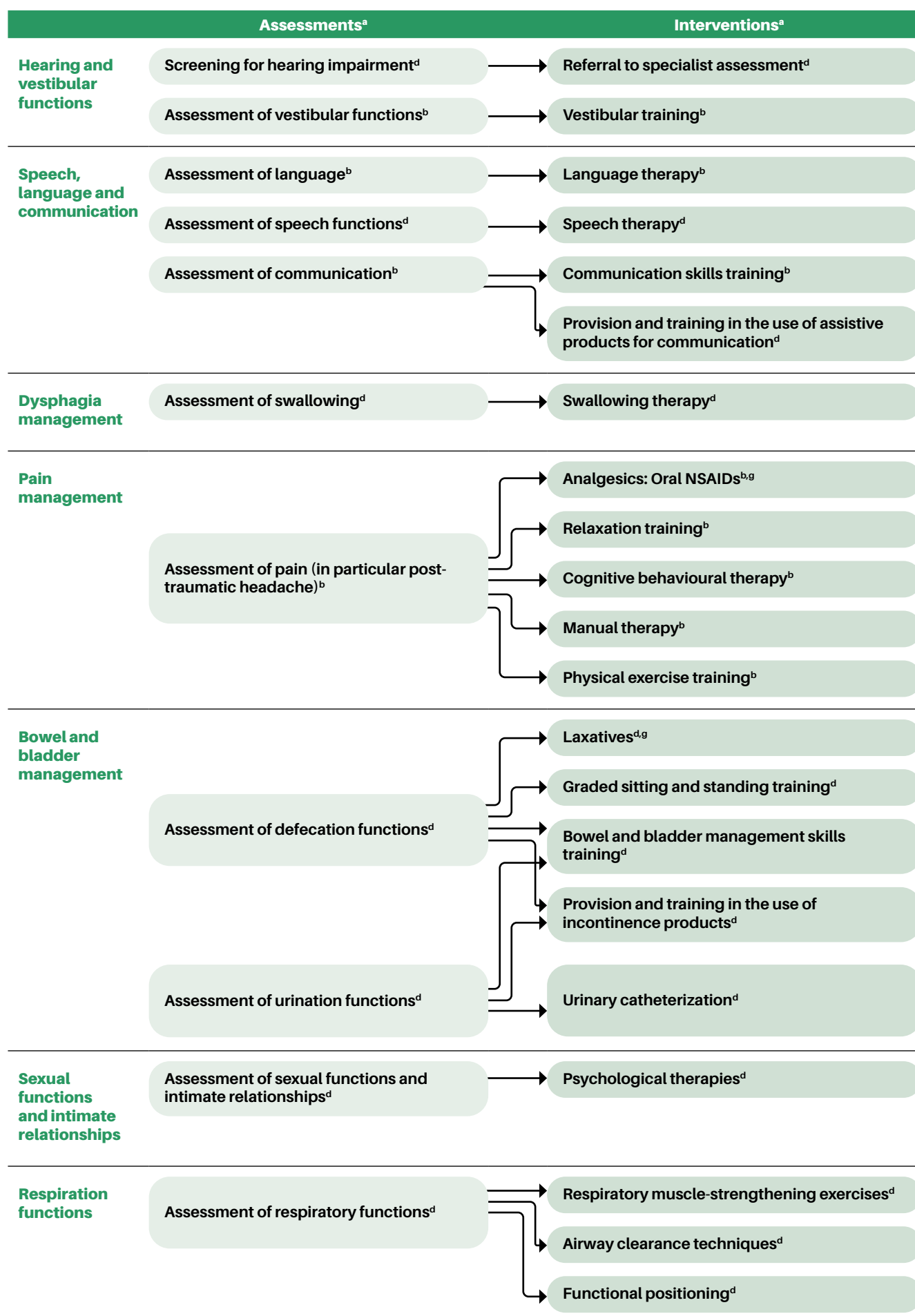
3.2 Content of the Package of interventions for rehabilitation for traumatic brain injury

Overview of the interventions for rehabilitation in traumatic brain injury

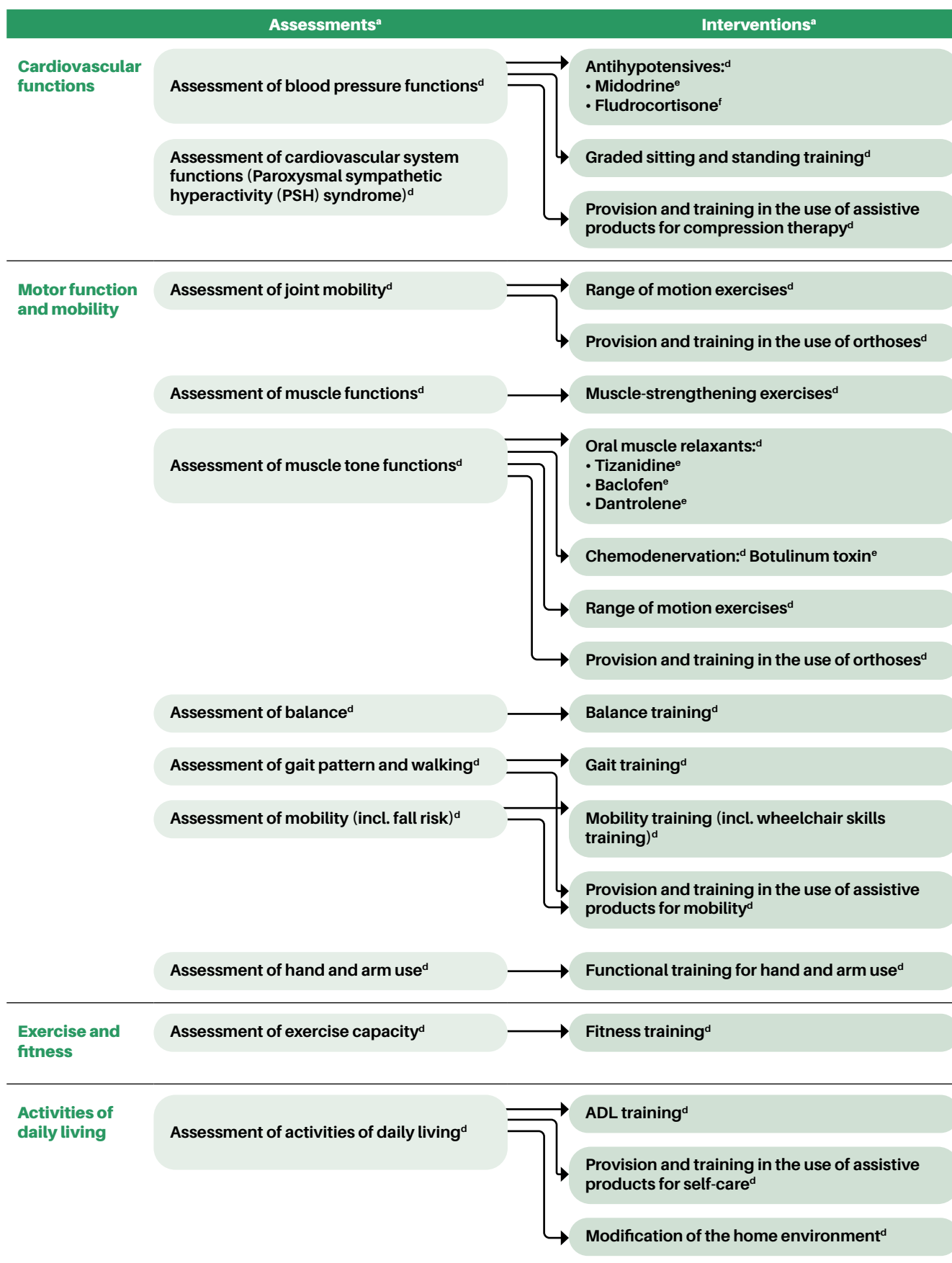
Functioning interventions



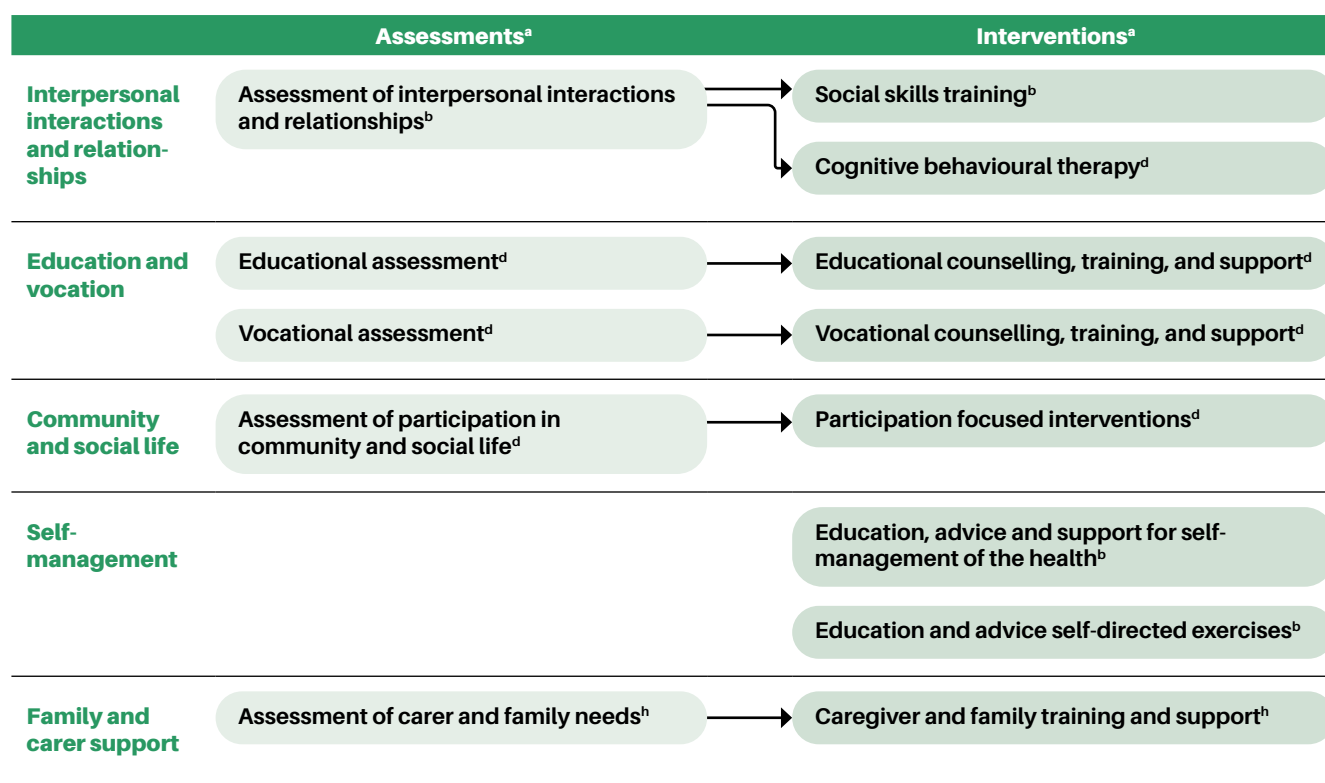
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^a See Annex 1 for definitions of assessments and interventions.

^b People with traumatic brain injury at all levels of severity.

^c People with severe levels of traumatic brain injury.

^d People with moderate and severe levels of traumatic brain injury.

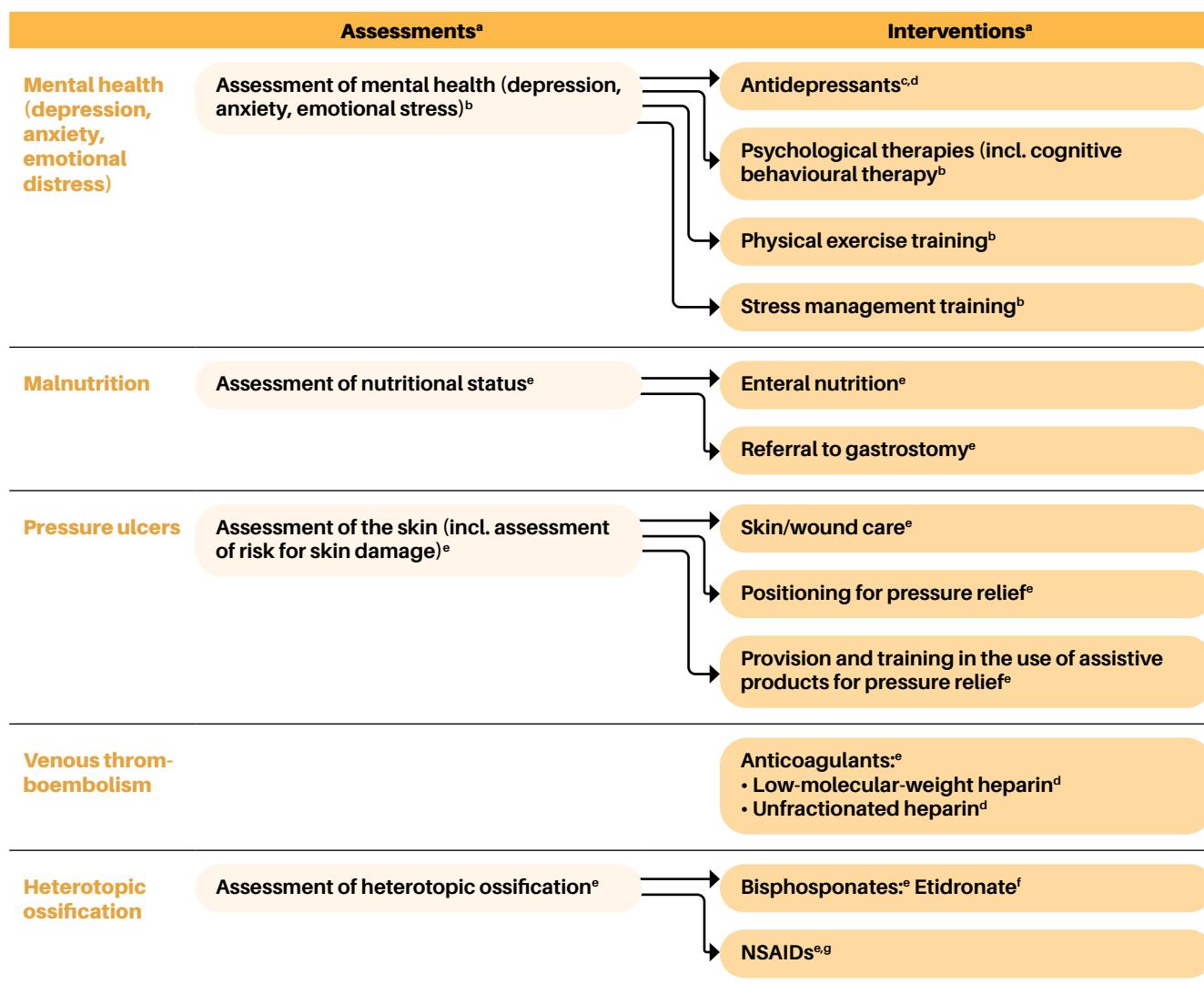
^e Medicine has not yet been evaluated for inclusion in WHO Model List of Essential Medicines (7).

^f Medicine is included in WHO Model List of Essential Medicines (7) but for another indication.

^g Medicines are included in WHO Model List of Essential Medicines (7).

^h Carer and family members of people with traumatic brain injury.

Interventions for the prevention and treatment of secondary conditions related to traumatic brain injury



^a See Annex 1 for definitions of assessments and interventions.

^b People with traumatic brain injury (TBI) at all levels of severity.

^c Adolescents and adults with TBI at all levels of severity and moderate to severe depression.

^d Medicines are included in WHO Model List of Essential Medicines (7).

^e People with moderate and severe levels of TBI.

^f Medicine has not yet been evaluated for inclusion in WHO Model List of Essential Medicines (7).

^g Medicine is included in WHO Model List of Essential Medicines (7) but for another indication.

Overview of the resources required for rehabilitation in traumatic brain injury

Functioning interventions

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Target: Cognitive functions					
	Assessment of cognitive functions	60	-	<ul style="list-style-type: none">• Computer/tablets with software• Cognitive test equipment• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist• Specialist medical practitioner/PRM physician
	Target: Consciousness functions					
	Sensory stimulation	20	-	<ul style="list-style-type: none">• Media (incl. television, music player)• Computer/tablets with software• Everyday objects	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Graded sitting and standing training	15	-	<ul style="list-style-type: none">• Tilt-table• Standing frames• Hoist and slings• Blood pressure measurement device• Pulse oximeter	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Target: Attention functions					
	Amantadine	5	-	-	<ul style="list-style-type: none">• Amantadine	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Target: Cognitive functions (incl. consciousness, attention, orientation, memory, and intellectual functions)					
	Cognitive remediation therapy (incl. e.g. metacognitive strategies, memory strategies, etc.)	45	-	<ul style="list-style-type: none">• Computer/tablets with software• Workbooks• Timer• Everyday objects	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Provision and training in the use of assistive products for cognition	30	<ul style="list-style-type: none"> • Recorders • Simplified mobile phones • Personal emergency alarm systems (PDA) • Pill organizers • Time management products • Memory aids 	-	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist
	Target: Sleep functions					
	Assessment of sleep disturbances	15	-	-	-	<ul style="list-style-type: none"> • Psychologist • Specialist medical practitioner/ PRM physician
	Zolpidem, Zopiclone	5	-	-	<ul style="list-style-type: none"> • Zolpidem • Zopiclone 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Relaxation training	30	-	<ul style="list-style-type: none"> • Exercise mat • Pillows • Foam rollers/wedges 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Psychologist
	Cognitive behavioural therapy	60	-	-	-	<ul style="list-style-type: none"> • Psychologist
	Target: Energy and drive functions (fatigue)					
	Assessment of fatigue	15	-	-	-	<ul style="list-style-type: none"> • Psychologist • Specialist medical practitioner/ PRM physician
	Energy conservation techniques	15	-	-	<ul style="list-style-type: none"> • Activity diary 	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Physical exercise training	30	-	<ul style="list-style-type: none"> • Timer • Exercise mats • Resistance bands • Weights • Cycle ergometer (arm or leg) 	-	<ul style="list-style-type: none"> • Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Problems with behaviour	Target: Behaviours (agitation, aggression, irritability)					
	Assessment of problems with behaviour	60	-	-	-	• Occupational therapist • Psychologist • Specialist medical practitioner/PRM physician
	Second generation antipsychotics	5	-	-	• Second generation antipsychotics	• Specialist medical practitioner/PRM physician
	Behavioural interventions	45	-	-	-	• Occupational therapist • Psychologist
Vision	Target: Seeing functions					
	Screening for vision impairment	20	-	• Vision screening charts for near and distance • Pinhole occluder • Measuring tape • Torch • Colour vision test chart	-	• Specialist medical practitioner/PRM physician
	Referral to specialist assessment	5	-	-	-	• Specialist medical practitioner/PRM physician
	Vision skills training	20	-	• Computer/tablets with software • Reading materials and pictures	-	• Occupational therapist
Hearing and vestibular functions	Target: Hearing functions					
	Screening for hearing impairment	10	-	• Audiometer		• Specialist medical practitioner/PRM physician
	Referral to specialist for assessment of hearing functions	5	-	-	-	• Specialist medical practitioner/PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Hearing and vestibular functions	Target: Vestibular functions					
	Assessment of vestibular functions	15	-	-	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/PRM physician
	Vestibular training	20	-	<ul style="list-style-type: none">• Exercise mat• Treatment table	-	<ul style="list-style-type: none">• Physiotherapist
Speech, language and communication	Target: Cognitive functions of language					
	Assessment of language	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/cards• Timer• Reading materials and pictures• Everyday objects/toys	-	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician• Speech and language therapist/pathologist
	Language therapy	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/cards• Timer• Reading materials and pictures• Everyday objects/(sound-making) toys	-	<ul style="list-style-type: none">• Speech and language therapist/pathologist
	Target: Speech functions					
	Assessment of speech functions	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Recorders (video and audio)• Timer• Mirror• Reading materials and pictures• Everyday objects/toys	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician• Speech and language therapist/pathologist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Speech therapy	45	–	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Recorders (video and audio) • Timer • Mirror • Metronome • Reading materials and pictures • Everyday objects 	<ul style="list-style-type: none"> • Gloves • Straws • Tongue depressor • Tissues • Face masks 	<ul style="list-style-type: none"> • Speech and language therapist/pathologist
Target: Communication					
Assessment of communication	30	–	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Communication boards/books/ cards • Recorders (video and audio) • Reading materials and pictures • Pointers 	–	<ul style="list-style-type: none"> • Occupational therapist • Speech and language therapist/pathologist
Communication skills training	45	–	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Communication boards/books/ cards • Recorders (video and audio) • Simplified mobile phones • Reading materials and pictures, toys • Whiteboard • Pointers 	–	<ul style="list-style-type: none"> • Occupational therapist • Speech and language therapist/pathologist
Provision and training in the use of assistive products for communication	45	<ul style="list-style-type: none"> • Communication boards/ books/ cards • Simplified mobile phones • Communication software • Recorders • In-line speaking valves 	–	–	<ul style="list-style-type: none"> • Occupational therapist • Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Dysphagia management	Target: Ingestion functions (swallowing and drooling)					
	Assessment of swallowing	45	-	<ul style="list-style-type: none">• Flexible laryngoscopy equipment• Videofluoroscopic equipment• Lead apron• Thyroid shield• Suction machine• (Adapted) eating and drinking utensils (e.g. spoon, cup)	<ul style="list-style-type: none">• Food dye• Food and liquids with different consistencies• Oral swabs• Straws• Tongue depressor• Oral anesthetic spray• Iodinated contrast• Liquid and powder barium• Gloves	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist
	Swallowing therapy	30	-	<ul style="list-style-type: none">• Spit basin• Suction machine• (Adapted) eating and drinking products• Blender• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Food thickeners• Modified liquids and solids• Straws• Dropper• Oral swabs• Gloves• Apron	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Speech and language therapist/pathologist
Pain management	Target: Sensation of pain (in particular post-traumatic headache)					
	Assessment of pain	30	-	-	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Analgesics	5	-	-	<ul style="list-style-type: none">• Oral NSAIDs	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Relaxation training	30	-	<ul style="list-style-type: none">• Exercise mat• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Psychologist
	Cognitive behavioural therapy	60	-	-	-	<ul style="list-style-type: none">• Psychologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Pain management	Manual therapy	30	-	<ul style="list-style-type: none"> • Treatment table • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Massage lotion 	<ul style="list-style-type: none"> • Physiotherapist
	Physical exercise training	30	-	<ul style="list-style-type: none"> • Timer • Exercise mats • Resistance bands • Weights • Cycle ergometer (arm or leg) 	-	<ul style="list-style-type: none"> • Physiotherapist
Bowel and bladder management	Target: Defecation functions					
	Assessment of defecation functions	20	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Specialist medical practitioner/ PRM physician
	Laxatives	5	-	<ul style="list-style-type: none"> • Insertion devices for rectal medications 	<ul style="list-style-type: none"> • Laxatives • Gloves • Lubricants 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Graded sitting and standing training	15	-	<ul style="list-style-type: none"> • Tilt-table • Standing frames • Hoist and slings • Blood pressure measurement device • Pulse oximeter 	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Physiotherapist
	Target: Urination functions					
	Assessment of urination functions	20	-	-	-	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Urinary catheterization	15	-	<ul style="list-style-type: none"> • Mirror • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Intermittent catheter kit • Indwelling catheter kit • Catheter bags • Gloves • Gel • Tissues • Diapers • Medical tape 	<ul style="list-style-type: none"> • Nursing professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Bowel and bladder management	Target: Defecation and urination functions					
	Bowel and bladder management skills training	45	-	<ul style="list-style-type: none">• Mirror• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Intermittent catheter kits• Catheter bags• Gloves• Gel• Diapers• Medical tape	<ul style="list-style-type: none">• Nursing professional
	Provision and training in the use of incontinence products	20	<ul style="list-style-type: none">• Intermittent catheter kits• Indwelling catheter kits• Incontinence products (absorbent)	-	-	<ul style="list-style-type: none">• Nursing professional
Sexual functions and intimate relationships	Target: Sexual functions and intimate relationships					
	Assessment of sexual functions and intimate relationships	45	-	-	-	<ul style="list-style-type: none">• Psychologist Specialist medical practitioner/PRM physician
	Psychological therapies	60	-	-	-	<ul style="list-style-type: none">• Psychologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Respiratory functions	Target: Respiration functions					
	Assessment of respiratory functions	30	-	<ul style="list-style-type: none">• Spirometer• Stethoscope• Peak flow meter• Pulse oximeter	<ul style="list-style-type: none">• Mouthpieces• Filter• Nose clips• Disinfection liquid	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Airway clearance techniques	30	-	<ul style="list-style-type: none">• Cough assist• Modified Ambu bag• Abdominal binder• Treatment table• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Face masks	<ul style="list-style-type: none">• Physiotherapist
	Respiratory muscle-strengthening exercises	20	-	<ul style="list-style-type: none">• Respiratory resistance threshold devices• Resistance bands	<ul style="list-style-type: none">• Mouthpieces• Nose clips• Disinfection liquid	<ul style="list-style-type: none">• Physiotherapist
	Functional positioning	10	<ul style="list-style-type: none">• Adapted seating• Adaptive wheelchair seating (front table, hand plate, tray table)	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
Cardiovascular functions	Target: Blood pressure functions (orthostatic hypotension)					
	Assessment of blood pressure functions	5	-	<ul style="list-style-type: none">• Blood pressure measurement device	-	<ul style="list-style-type: none">• Nursing professional• Specialist medical practitioner/ PRM physician
	Antihypotensive agents <ul style="list-style-type: none">• Midodrine• Fludrocortisone	5	-	-	<ul style="list-style-type: none">• Midodrine• Fludrocortisone	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Graded sitting and standing training	15	-	<ul style="list-style-type: none">• Tilt-table• Standing frame• Blood pressure measurement device• Pulse oximeter• Hoist and slings	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Cardiovascular functions	Provision and training in the use of assistive products for compression therapy	15	• Products for compression therapy (garments, stockings, bandages)	–	–	• Nursing professional • Occupational therapist • Physiotherapist
	Target: Paroxysmal sympathetic hyperactivity (PSH) syndrome					
	Assessment of cardiovascular system functions (paroxysmal sympathetic hyperactivity (PSH) syndrome)	30	–	• Blood pressure measurement device • Pulse oximeter • Stethoscope • Thermometer	–	• Specialist medical practitioner/ PRM physician
Motor functions and mobility	Target: Mobility of joint functions					
	Assessment of joint mobility	10	–	• Treatment table • Goniometer • Measuring tape	–	• Occupational therapist • Physiotherapist
	Range of motion exercises	15	–	• Treatment table	–	• Occupational therapist • Physiotherapist
	Provision and training in the use of orthoses	60	• Orthoses, lower limb • Orthoses, upper limb	• Casting kit • Splinting kit (static/dynamic) • Orthoses kit	–	• Occupational therapist • Physiotherapist • Prosthetist and orthotist
	Target: Muscle power functions					
	Assessment of muscle functions	20	–	• Treatment table • Handheld dynamometer	–	• Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
	Muscle-strengthening exercises	20	–	• Weights • Resistance bands • Resistive exercise putty • Exercise mat • Treatment table	–	• Occupational therapist • Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Muscle tone functions					
Assessment of muscle tone functions	20	-	<ul style="list-style-type: none">• Treatment table• Reflex hammer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Oral muscle relaxants	5	-	-	<ul style="list-style-type: none">• Tizanidine• Baclofen• Dantrolene	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Chemodenervation	30	-	<ul style="list-style-type: none">• Treatment table• Ultrasound scanner	<ul style="list-style-type: none">• Botulinum toxin• Gloves• Alcohol wipes• Needles and syringes• Ultrasound gel	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Range of motion exercises	15	-	<ul style="list-style-type: none">• Treatment table	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Provision and training in the use of orthoses	60	<ul style="list-style-type: none">• Orthoses, lower limb• Orthoses, upper limb	<ul style="list-style-type: none">• Casting kit• Splinting kit (static/dynamic)• Orthoses kit	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Prosthetist and orthotist
Target: Involuntary movement reaction functions (balance)					
Assessment of balance	20	-	<ul style="list-style-type: none">• Timer• Measuring tape	-	<ul style="list-style-type: none">• Physiotherapist• Occupational therapist• Specialist medical practioner/ PRM physician
Balance training	20	-	<ul style="list-style-type: none">• Standing frames, adjustable• Balance board/cushion• Exercise mat• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Target: Gait pattern functions and walking					
Assessment of gait pattern and walking	30	-	<ul style="list-style-type: none">• Timer• Measuring tape• Parallel bar	-	<ul style="list-style-type: none">• Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Gait training	30	–	<ul style="list-style-type: none"> • Assistant support belt • Canes/sticks/tetrapod • Crutches, axillary/elbow • Mobile mirror • Parallel bar • Rollators • Training stairs • Walking frames/walkers • (Treadmill) 	–	<ul style="list-style-type: none"> • Physiotherapist
Target: Mobility					
Assessment of mobility (incl. wheelchair skills)	30	–	<ul style="list-style-type: none"> • Transfer boards/slide sheet • Ramps (temporary/mobile) • Timer 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Mobility training (incl. wheelchair skills training)	30	–	<ul style="list-style-type: none"> • Exercise mat • Cones • Ramps (temporary/mobile) • Steps (stackable) • Stools/small benches of varying height • Training stairs • Transfer boards/slide sheet 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Provision and training in the use of assistive products for mobility	30	<ul style="list-style-type: none"> • Cane/sticks/tetrapod • Crutches, axillary/elbow • Rollators • Walking frames/walkers • Orthoses, lower limb • Slide sheet • Transfer boards • Wheelchair (manual or electrical) • Front table (for wheelchair) • Pressure cushion • Tricycle (arm- or leg-powered) 	<ul style="list-style-type: none"> • Casting kit • Splinting kit (static/dynamic) • Orthoses kit • Measuring tape 	–	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Prosthetist and orthotist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
	Target: Hand and arm use					
	Assessment of hand and arm use	20	-	<ul style="list-style-type: none">• Upper limb workstation• Utensils for activities of daily living	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Functional training for hand and arm use	20	-	<ul style="list-style-type: none">• Upper limb workstation• Utensils for activities of daily living	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Exercise and fitness	Target: Exercise tolerance functions					
	Assessment of exercise capacity	30	-	<ul style="list-style-type: none">• Timer• Cycle ergometer (arm or leg)• Heart rate monitor	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/PRM physician
	Fitness training	30	-	<ul style="list-style-type: none">• Cycle ergometer (arm or leg)• Exercise mat• Resistance bands• Weights• Exercise ball• Timer	-	<ul style="list-style-type: none">• Physiotherapist
Activities of daily living	Target: Activities of daily living (ADL)					
	Assessment of ADL	30	-	<ul style="list-style-type: none">• Utensils for activities of daily living	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	ADL training	30	-	<ul style="list-style-type: none">• Utensils for activities of daily living• Assistive products for toileting• Adapted eating and drinking products• Assistive products for dressing	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Provision and training in the use of assistive products for self-care	30	<ul style="list-style-type: none">• Assistive products for toileting• Adapted eating and drinking products• Assistive products for dressing	-	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
	Modification of the home environment	60	<ul style="list-style-type: none"> • Handrail/grab bars • Ramps, portable • Alarm signallers with light/sound/vibration • Personal emergency alarm systems (PDA) 	-	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Interpersonal interactions and relationships	Target: Interpersonal interactions and relationships					
	Assessment of interpersonal interactions and relationships	30	-	-	-	<ul style="list-style-type: none"> • Occupational therapist • Psychologist • Specialist medical practitioner/PRM physician
	Social skills training	30	-	-	-	<ul style="list-style-type: none"> • Occupational therapist • Psychologist
	Cognitive behavioural therapy	60	-	-	-	<ul style="list-style-type: none"> • Psychologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Education and vocation	Target: Education					
	Educational assessment	60	-	-	-	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional• Special educator• Speech and language therapist/pathologist
	Educational counselling, training, and support	60	-	<ul style="list-style-type: none">• School-related tools and equipment	<ul style="list-style-type: none">• Information materials (e.g. flyers, brochures)	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional• Special educator• Speech and language therapist/pathologist
	Target: Work and employment					
	Vocational assessment	90	-	<ul style="list-style-type: none">• Work-related tools and equipment	-	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional
	Vocational counselling, training, and support	60	-	<ul style="list-style-type: none">• Work-related tools and equipment	-	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional
Community and social life	Target: Community and social life					
	Assessment of participation in community and social life	20	-	-	-	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional
	Participation focused interventions	60	-	<ul style="list-style-type: none">• Equipment for sport and recreational activities	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Social work and counselling professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Self-management	Target: Self-management					
	Education, advice and support for self-management of the health condition (Incl. education and advice on sleep hygiene, depressive disorders, substance use, dysphagia management, oral care, pain, bladder function, sexuality, driving, leisure activities)	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Peer counsellor • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician
	Education and advice on self-directed exercises	45	-	-	• Information materials (e.g. flyers, brochures)	• Occupational therapist • Physiotherapist
Carer and family support	Target: Carer and family support					
	Assessment of carer and family needs	30	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional
	Caregiver and family training and support	45	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional

ADL: activity of daily living; NSAID: non-steroidal anti-inflammatory drug; PRM: physical and rehabilitation medicine.

Interventions for the prevention and treatment of secondary conditions related to traumatic brain injury

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental health	Target: Mental health (in particular depression, anxiety, emotional distress)					
	Assessment of mental health	60		-	-	<ul style="list-style-type: none">• Psychologist• Specialist medical practitioner/ PRM physician
	Antidepressants	5		-	<ul style="list-style-type: none">• Antidepressants	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Psychological therapies (incl. cognitive behavioural therapy)	60		-	-	<ul style="list-style-type: none">• Psychologist
	Physical exercise training	30	-	<ul style="list-style-type: none">• Timer• Exercise mats• Resistance bands• Weights• Cycle ergometer (arm or leg)	-	<ul style="list-style-type: none">• Physiotherapist
	Stress management training	30	-	-	-	<ul style="list-style-type: none">• Psychologist
Malnutrition	Target: Malnutrition					
	Assessment of nutritional status	20	-	<ul style="list-style-type: none">• Scale weight (wheelchair accessible)• Measuring tape	-	<ul style="list-style-type: none">• Dietitian and nutritionist• Nursing professional• Specialist medical practitioner/ PRM physician
	Enteral nutrition	15	-	<ul style="list-style-type: none">• Feeding machine (pump)	<ul style="list-style-type: none">• Food thickeners• Nutritional supplements• Syringes• Feeding tubes	<ul style="list-style-type: none">• Nursing professional• Specialist medical practitioner/ PRM physician
	Referral to gastrostomy	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Pressure ulcer	Target: Pressure ulcers					
	Assessment of the skin (incl. Assessment of risk for skin damage)	10	-	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist• Specialist medical practitioner/PRM physician
	Skin/wound care	15	-	-	<ul style="list-style-type: none">• Moisturizing product• Barrier product• Cleansing product• Cleansing solutions with antimicrobials• Topical antiseptics• Wound dressings	<ul style="list-style-type: none">• Nursing professional• Specialist medical practitioner/PRM physician
	Positioning for pressure relief	10	<ul style="list-style-type: none">• Pressure relief products	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Provision and training in the use of assistive products for pressure relief	15	<ul style="list-style-type: none">• Pressure relief products (mattress and cushions)	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
Deep venous thrombo-embolism	Target: Deep venous thromboembolism					
	Anticoagulants	5	-	-	<ul style="list-style-type: none">• Low-molecular-weight heparin• Unfractionated heparin	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
Heterotopic ossification	Target: Heterotopic ossification					
	Assessment of heterotopic ossification	20	-	<ul style="list-style-type: none">• General-purpose X-ray system, digital• Ultrasound scanner	-	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Bisphosphonates (Etidronate)	5	-	-	<ul style="list-style-type: none">• Bisphosphonates	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Nonsteroidal anti-inflammatory drugs (NSAIDs)	5	-	-	<ul style="list-style-type: none">• NSAIDs	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician

Summary of the required material resources and workforce

Material resources

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
Products for cognition <ul style="list-style-type: none"> • Alarm signallers with light/sound/vibration • Memory aids • Personal emergency alarm systems (PDA) • Pill organizers • Recorders • Simplified mobile phones • Time management products Products for communication <ul style="list-style-type: none"> • Communication boards/books/cards • Communication software • In-line speaking valves Products for self-care <ul style="list-style-type: none"> • Adapted eating and drinking products • Assistive products for dressing • Assistive products for toileting • Indwelling catheter kits • Intermittent catheter kits • Incontinence products, absorbent (pads/diapers) • Products for compression therapy (garments, stockings, bandages) Products for mobility <ul style="list-style-type: none"> • Cane/sticks/tetrapod • Crutches, axillary/elbow • Front table (for wheelchair) • Handrail/grab bars • Orthoses, lower limb • Orthoses, upper limb • Pressure cushion • Pressure relief products • Ramps, portable • Rollators • Transfer boards/slide sheets • Tricycle (arm- or leg-powered) • Walking frames/walkers • Wheelchair (manual or electrical) 	Specific for assessment <ul style="list-style-type: none"> • Audiometer • Blood pressure measurement device • Cognitive test equipment • Colour vision test chart • Flexible laryngoscopy equipment • General-purpose X-ray system, digital • Goniometer • Heart rate monitor • Handheld dynamometer • Lead apron • Measuring tape • Peak flow meter • Pinhole occluder • Pulse oximeter • Reflex hammer • Spirometer • Stethoscope • Thermometer • Thyroid shield • Torch • Ultrasound scanner • Videofluoroscopic equipment • Vision screening charts for near and distance • Scale weight (wheelchair accessible) For interventions <ul style="list-style-type: none"> • Communication boards/books/cards • Computer/tablets with (communication) software • Reading materials and pictures • Recorders (video and audio) • Simplified mobile phones • Pointers • Whiteboard • Media (incl. television, music player) • Workbooks • (Adapted) eating and drinking products • Assistive products for dressing • Assistive products for toileting • Utensils for activities of daily living • Everyday objects • Feeding machine (pump) • Blender • Suction machine 	<ul style="list-style-type: none"> • Activity diary • Alcohol wipes • Apron • Barrier product • Catheter bags • Cleansing product • Cleansing solutions with antimicrobials • Diapers • Disinfection liquid • Dropper • Face masks • Feeding tubes • Filter • Food dye • Food thickeners • Food/drink with different consistencies • Gel • Gloves • Indwelling catheter kit • Information materials (e.g. flyers, brochures) • Intermittent catheter kit • Iodinated contrast • Laxatives • Liquid and powder barium • Lubricants • Massage lotion • Medical tape • Midodrine • Modified liquids and solids • Moisturizing product • Mouthpieces • Needles and syringes • Nose clips • Nutritional supplements • Oral anesthetic spray • Oral swabs • Straws • Syringes • Tissues • Tongue depressor • Topical antiseptics • Ultrasound gel • Wound dressings Medicines <ul style="list-style-type: none"> • Amantadine • Amitriptyline

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
	<ul style="list-style-type: none"> • Spit basin • Insertion devices for rectal medications • Respiratory resistance threshold devices • Cough assist • Abdominal binder • Modified Ambu bag • Canes/sticks/tetrapod • Crutches, axillary/elbow • Rollators • Standing frame • Walking frames/walkers • Casting kit • Orthoses kit • Splinting kit (static/dynamic) • Foam rollers/wedges • Pillows • Assistant support belt • Hoist and slings • Transfer boards/slide sheet • Tilt-table • Treatment table • Stools/small benches of varying height • Resistance bands • Resistive exercise putty • Weights • Exercise balls • Exercise mat • Balance board/cushion • Steps • Training stairs • Parallel bar • Metronome • Ramps (temporary/mobile) • Cones • Mobile mirror • (Treadmill) • Cycle ergometer (arm or leg) • Timer • Upper limb workstation • Work-related tools and equipment • School-related tools and equipment • Equipment for sport and recreational activities 	<ul style="list-style-type: none"> • Baclofen • Bisphosphonates • Botulinum toxin • Dantrolene • Fludrocortisone • Low-molecular-weight heparin • Oral NSAIDs • Second generation antipsychotics • Tizanidine • Unfractionated heparin • Zolpidem, Zopiclone

NSAID: non-steroidal anti-inflammatory drug.

Workforce

Overview of rehabilitation specialists qualified to deliver interventions for rehabilitation for traumatic brain injury (in alphabetical order)

- Dietitians and nutritionists
- Nursing professionals
- Occupational therapists
- Physiotherapists
- Prosthetists and orthotists
- Psychologists
- Social work and counselling professionals
- Special educators
- Specialist medical practitioners/PRM physicians
- Speech and language therapists/pathologists

PRM: physical and rehabilitation medicine.

3.3 Members of the working groups

The following experts have contributed to the development of the *Package of interventions for rehabilitation for traumatic brain injury* along the different development steps and using the listed clinical practice guidelines and Cochrane systematic reviews. See Annex 2 for a summary of declarations of interest.

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3.4 References

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4

Package of interventions for rehabilitation for spinal cord injury

4.1 About spinal cord injury

The term “spinal cord injury” refers to damage to the spinal cord resulting from trauma (e.g. road traffic injuries) or from disease, vitamin deficiencies or degeneration (e.g. cancer). Annual global incidence is estimated to be 40–80 cases per 1 million population; estimates of global prevalence are unreliable (1). Together with traumatic brain injury, spinal cord injury constitutes a considerable portion of the global injury burden (2). Mortality risk is highest in the first year after injury and remains high compared to the general population (1). Up to 90% of these cases are due to traumatic causes, although the proportion of non-traumatic spinal cord injury appears to be growing.

Symptoms depend on the severity of injury and its location on the spinal cord, and may include partial or complete loss of sensory function or motor control of arms, legs and/or body. The most severe spinal cord injury affects the systems that regulate bowel or bladder control, breathing, heart rate and blood pressure. Preventable secondary conditions (e.g. infections from untreated pressure ulcers) are no longer among the leading causes of death for people with spinal cord injury in high-income countries, however, for people with spinal cord injury in low-income countries, these conditions remain the main causes of death (1).

Spinal cord injury has a profound impact on individuals, their families, and communities. Related symptoms often lead to severe limitations in mobility which then contribute to limitations in performing activities independently in daily living, and participating in meaningful educational, work-related and social activities. Spinal cord injury is associated with lower rates of school enrolment and economic participation and carries substantial individual and societal costs (1). Many of the associated consequences do not result from the condition itself, but from inadequate medical care and rehabilitation services, and from barriers in the physical, social and policy environments (1). Due to the chronic course, people with spinal cord injury often require ongoing care provided largely by informal carers. Challenges for carers include stress, role strain, financial burden, social isolation, and bereavement in the event of loss of loved ones. Caring for a person with spinal cord injury may affect the carer’s own health, well-being and social relationships.

Role of rehabilitation in spinal cord injury

It is estimated that in 2019, there were 21 million people worldwide living with spinal cord injury who could benefit from rehabilitation (3). Access to skilled rehabilitation and mental health services is essential to maximize functioning, independence, overall well-being and community integration (1). Interventions for rehabilitation are tailored to an individual’s need,

and to support people with spinal cord injury to achieve and maintain their optimal levels of functioning through restoring body functions (if possible), learning strategies to compensate impaired functions and activities, including using appropriate assistive products, and removing environmental barriers. Rehabilitation thus supports people with spinal cord injury to perform activities independently and to reintegrate into social and community activities (including vocational reintegration). Interventions for rehabilitation also comprise strategies to prevent the development of secondary conditions thereby contributing to increased life expectancy and maintenance of optimal functioning. Rehabilitation further aims to train and support carers and families by providing the appropriate strategies to take care for themselves.

Target population for the Package of interventions for rehabilitation for spinal cord injury

This *Package of interventions of rehabilitation for spinal cord injury* is intended to be used for children, adolescents and adults with spinal cord disorders caused by injury (ICD-11: NA30 Concussion or oedema of cervical spinal cord; NA31 Certain specified injuries of cervical spinal cord; NA90 Concussion or oedema of thoracic spinal cord; NA91 Certain specified injuries of thoracic spinal cord; NB60 Concussion or oedema of lumbar spinal cord; NB61 Concussion or oedema of sacral spinal cord; NB62 Certain specified injuries of lumbar spinal cord; NB63 Certain specified injuries of sacral spinal cord) or disease (ICD-11: 8B40 Cauda equina syndrome; 8B41 Myelitis; 8B42 Myelopathy; 8B43 Non-compressive vascular myelopathies) at all levels of severity, in acute, post-acute or chronic stage.

Important links to other WHO products relevant for the care of people with spinal cord injury:

- *mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0 (4).*
- *WHO Model List of Essential Medicines (5).*

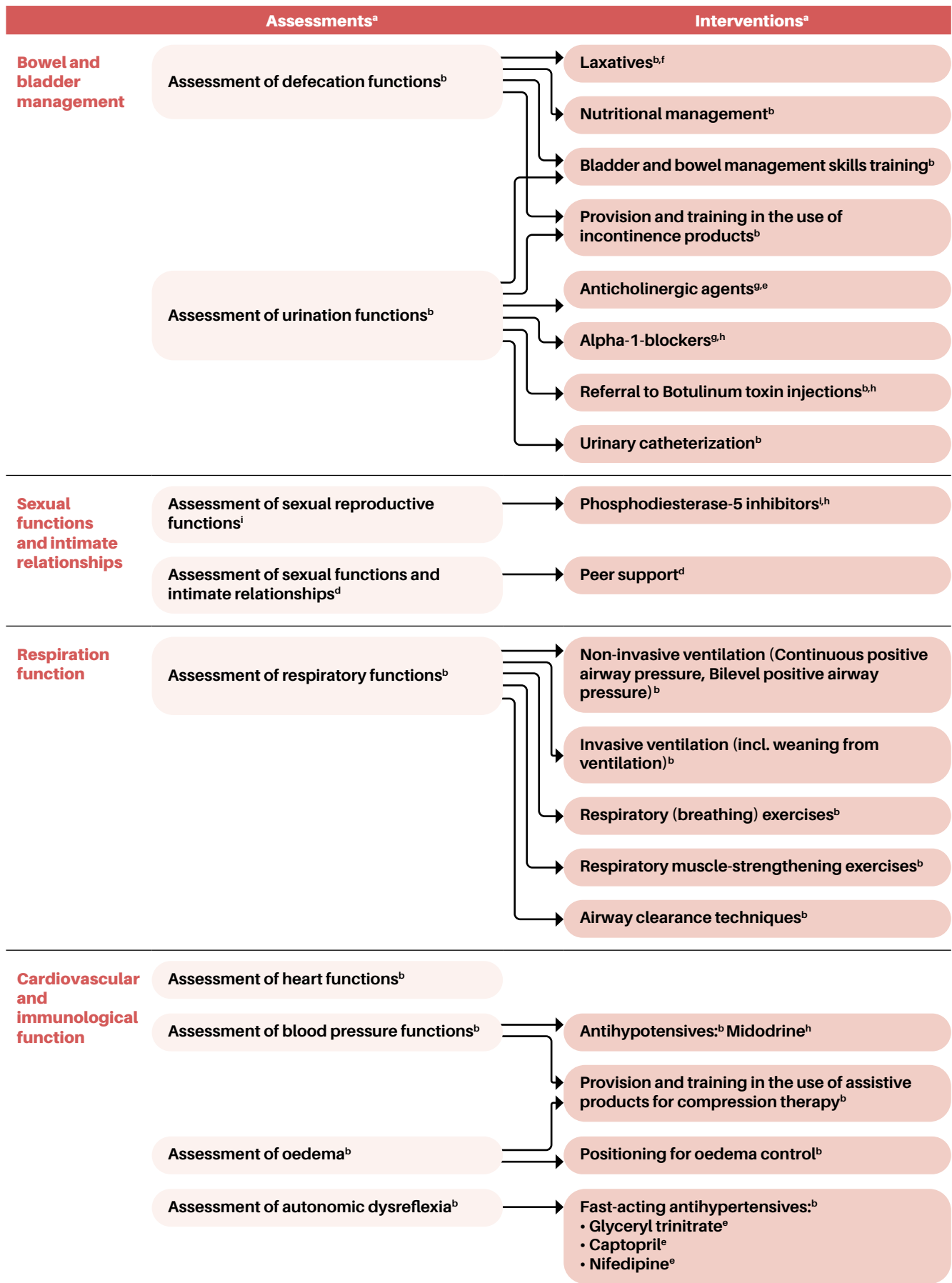
4.2 Content of the Package of interventions for rehabilitation for spinal cord injury

Overview of the interventions for rehabilitation in spinal cord injury

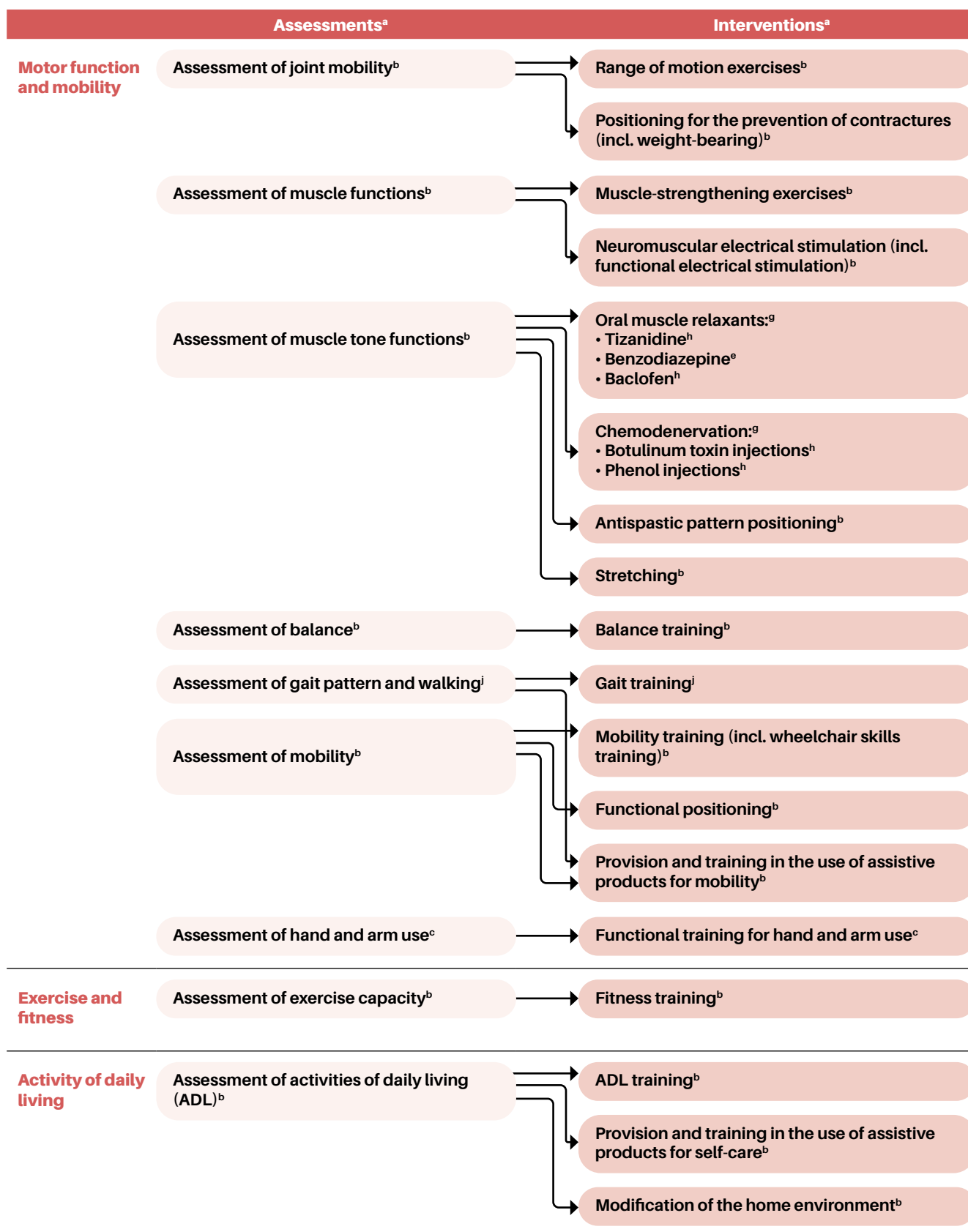
Functioning interventions

	Assessments ^a	Interventions ^a
Cognitive function	Screening for cognitive impairment ^b	
Speech, language and communication	Assessment of communication ^c	Provision and training in the use of assistive products for communication ^c
Dysphagia management	Assessment of swallowing ^c	Swallowing therapy ^c
Pain management	Assessment of pain ^b	<div>Neuropathic pain:</div> <div>Analgesics:^d Amitriptyline^e</div> <div>Transcutaneous electrical stimulation (TENS)^b</div> <div>Musculoskeletal pain:</div> <div>Analgesics:^b Oral NSAIDs^f</div> <div>Musculoskeletal and neuropathic pain:</div> <div>Physical exercise training^b</div> <div>Cognitive behavioural therapy^b</div>

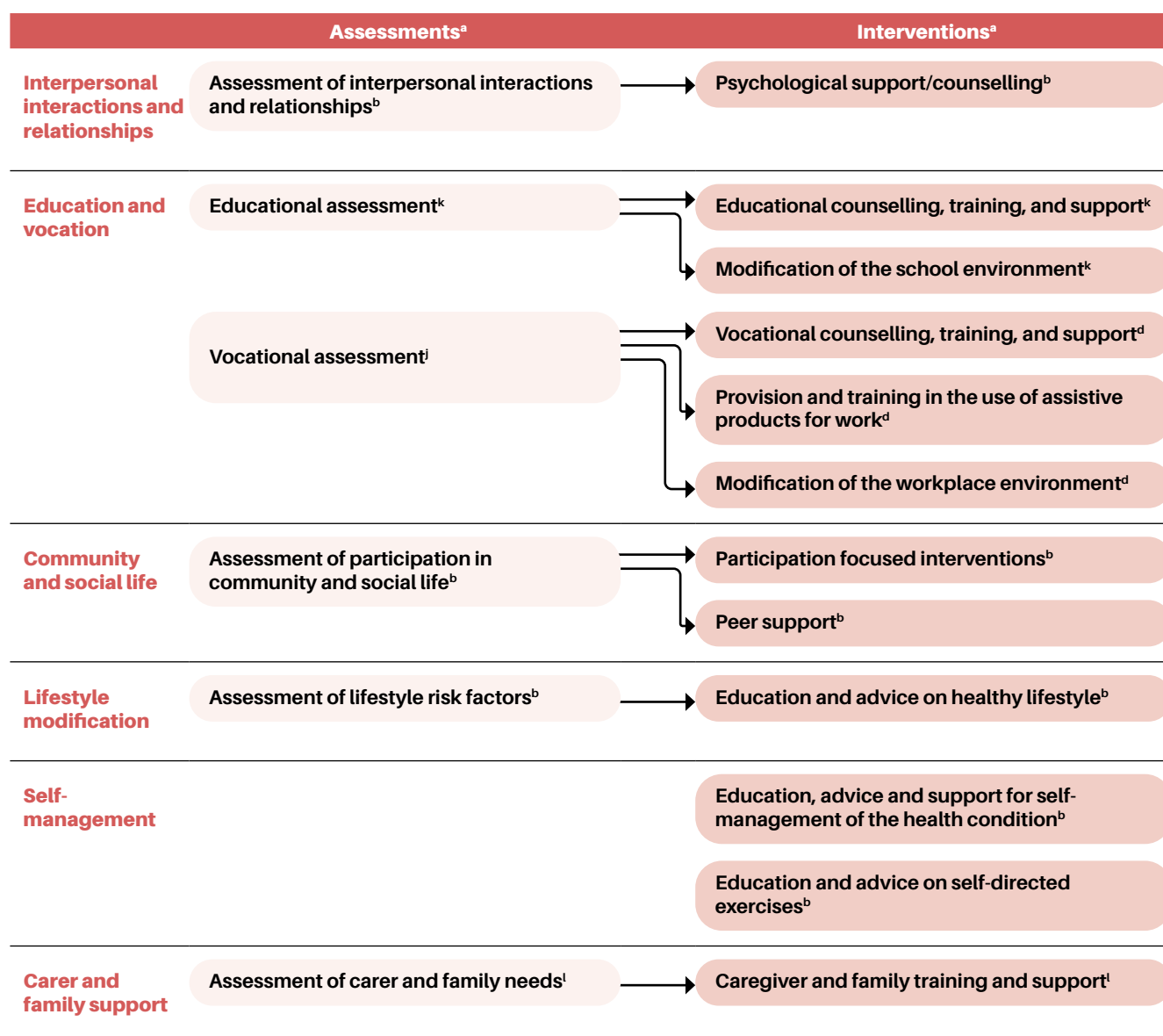
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^a See Annex 1 for definitions of assessments and interventions.

^b People with paraplegia or tetraplegia (all ages).

^c People with tetraplegia (all ages).

^d Adolescents and adults with paraplegia or tetraplegia.

^e Medicine is included in WHO Model List of Essential Medicines (5) but for another indication.

^f Medicines are included in WHO Model List of Essential Medicines (5).

^g People with paraplegia or tetraplegia (aged >2 years).

^h Medicine has not yet been evaluated for inclusion in WHO Model List of Essential Medicines (5).

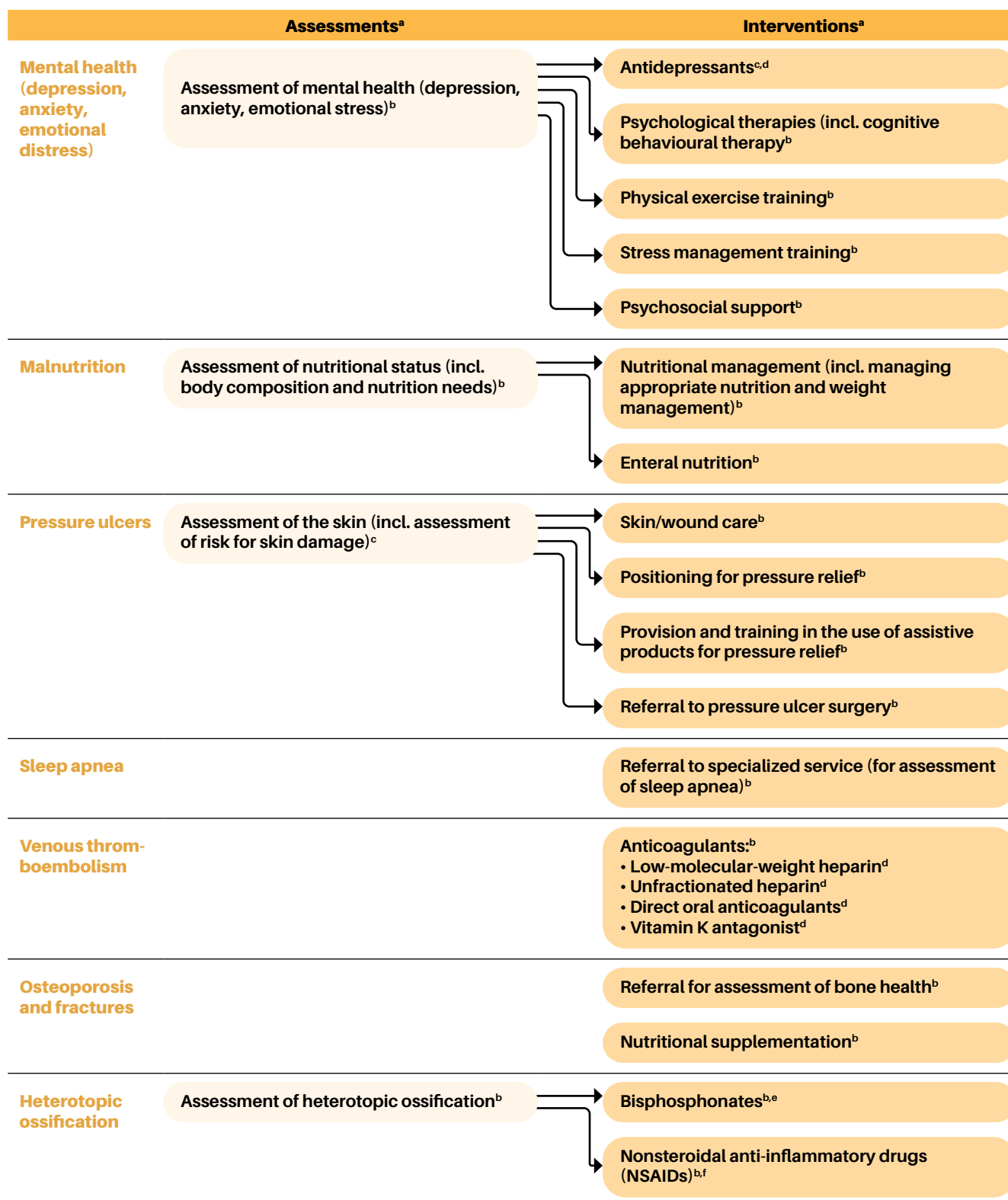
ⁱ Adult men with paraplegia or tetraplegia and erectile dysfunction.

^j People with incomplete paraplegia or tetraplegia (all ages).

^k Children and adolescents with paraplegia or tetraplegia.

^l Carer and family members of people with spinal cord injury.

Interventions for the prevention and treatment of secondary conditions related to spinal cord injury



^a See Annex 1 for definitions of assessments and interventions.

^b People with paraplegia or tetraplegia (all ages).

^c Adults with paraplegia or tetraplegia, and moderate to severe levels of depression.

^d Medicines are included in WHO Model List of Essential Medicines (5).

^e Medicine has not yet been evaluated for inclusion in WHO Model List of Essential Medicines (5).

^f Medicine is included in WHO Model List of Essential Medicines (5) but for another indication.

Overview of the resources required for rehabilitation in spinal cord injury

Functioning interventions

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Target: Cognitive functions					
	Screening for cognitive impairment	20	-	<ul style="list-style-type: none">• Computer/tablets with software• Cognitive test equipment• Timer	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Specialist medical practitioner/PRM physician
Speech, language and communication	Target: Communication					
	Assessment of communication	30	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/ cards• Recorders (video and audio)• Reading materials and pictures• Pointers	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
	Provision and training in the use of assistive products for communication	45	<ul style="list-style-type: none">• Communication boards/ books/cards• Simplified mobile phones• Communication software• In-line speaking valves	-	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Dysphagia management	Target: Swallowing					
	Assessment of swallowing	45	-	<ul style="list-style-type: none">• Flexible laryngoscopy equipment• Videofluoroscopic equipment• Lead apron• Thyroid shield• Suction machine• (Adapted) eating and drinking utensils (e.g. spoon, cup)	<ul style="list-style-type: none">• Food dye• Food and liquids with different consistencies• Oral swabs• Straws• Tongue depressor• Oral anesthetic spray• Iodinated contrast• Liquid and powder barium• Gloves	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist
	Swallowing therapy	30	-	<ul style="list-style-type: none">• Spit basin• Suction machine• (Adapted) eating and drinking products• Blender• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Apron• Dropper• Food thickeners• Gloves• Oral swabs• Modified liquids and solids• Straws	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Speech and language therapist/pathologist
Sensation of pain	Target: Sensation of pain (incl. musculoskeletal and neuropathic pain)					
	Assessment of pain	30	-	-	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Physical exercise training	30	-	<ul style="list-style-type: none">• Timer• Exercise mats• Resistance bands• Weights• Cycle ergometer (arm or leg)	-	<ul style="list-style-type: none">• Physiotherapist
	Cognitive behavioural therapy	60	-	-	-	<ul style="list-style-type: none">• Psychologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Sensation of pain	Target: Neuropathic pain					
	Analgesics	5	-	-	• Amitriptyline	• Specialist medical practitioner/ PRM physician
	Transcutaneous electrical stimulation (TENS)	10	-	• TENS Supply kit	• Alcohol wipes • Replaceable sticky electrode pads • Gel	• Occupational therapist • Physiotherapist
	Target: Musculoskeletal pain					
	Analgesics	5	-	-	• Oral NSAIDs	• Specialist medical practitioner/ PRM physician
Bowel and bladder management	Target: Defecation functions					
	Assessment of defecation functions	20	-	-	-	• Nursing professional • Specialist medical practitioner/ PRM physician
	Laxatives	5	-	• Insertion devices for rectal medications	• Laxatives • Gel • Gloves	• Specialist medical practitioner/ PRM physician
	Nutritional management	30	-	-	• Nutritional supplements • Nutritional diary	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/ PRM physician
	Target: Urination functions					
	Assessment of urination functions	20	-	-	-	• Nursing professional • Specialist medical practitioner/ PRM physician
	Anticholinergic agents	5	-	-	• Anticholinergic agents	• Specialist medical practitioner/ PRM physician
	Alpha-1-blockers	5	-	-	• Alpha-1-blockers	• Specialist medical practitioner/ PRM physician
	Referral to Botulinum toxin injections	5	-	-	-	• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Bowel and bladder management	Urinary catheterization	15	-	<ul style="list-style-type: none"> • Mirror • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Intermittent catheter kit • Indwelling catheter kit • Catheter bags • Gloves • Gel • Tissues • Diapers • Medical tape 	<ul style="list-style-type: none"> • Nursing professional
	Target: Defecation and urination functions					
	Bowel management skills training	45	-	<ul style="list-style-type: none"> • Mirror • Pillows • Foam rollers/wedges 	<ul style="list-style-type: none"> • Intermittent catheter kits • Catheter bags • Gloves • Gel • Diapers • Medical tape 	<ul style="list-style-type: none"> • Nursing professional
Sexual functions and intimate relationships	Provision and training in the use of incontinence products	20	<ul style="list-style-type: none"> • Intermittent catheter kits • Indwelling catheter kits • Incontinence products (absorbent) 	-	-	<ul style="list-style-type: none"> • Nursing professional
	Target: Reproductive functions					
	Assessment of sexual reproductive functions	20	-	<ul style="list-style-type: none"> • Penile vibratory stimulation (PVS) device • Microscope 	<ul style="list-style-type: none"> • Gloves • Specimen cup 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Phosphodiesterase-5 inhibitors	5	-	-	<ul style="list-style-type: none"> • Phosphodiesterase-5 inhibitors 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Target: Sexual functions and intimate relationships					
	Assessment of sexual functions and intimate relationships	45	-	-	-	<ul style="list-style-type: none"> • Psychologist • Specialist medical practitioner/ PRM physician
	Peer support	45	-	-	<ul style="list-style-type: none"> • Information materials (e.g. flyers, brochures) 	<ul style="list-style-type: none"> • Peer counsellor

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Respiration functions					
Assessment of respiratory functions	30	–	<ul style="list-style-type: none">• Spirometer• Stethoscope• Peak flow meter• Pulse oximeter	<ul style="list-style-type: none">• Mouthpieces• Filter• Nose clips• Disinfection liquid	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
Non-invasive ventilation (Continuous positive airway pressure (CPAP), Bilevel positive airway pressure (BiPAP))	30	–	<ul style="list-style-type: none">• Non-invasive ventilation equipment (for CPAP and BiPAP)• Ventilator	<ul style="list-style-type: none">• Oxygen• Face masks (single-use)• Tubing	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Invasive ventilation (incl. weaning from ventilation)	30	–	<ul style="list-style-type: none">• Invasive ventilation equipment• Ventilator	<ul style="list-style-type: none">• Oxygen• Mouthpieces• Speaking valve and tracheostomy cap)	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Breathing exercises	15	–	<ul style="list-style-type: none">• Inspiratory and expiratory training devices	<ul style="list-style-type: none">• Straws	<ul style="list-style-type: none">• Nursing professional• Physiotherapist
Respiratory muscle-strengthening exercises	20	–	<ul style="list-style-type: none">• Respiratory resistance training devices• Resistance bands	<ul style="list-style-type: none">• Mouthpieces• Nose clips• Disinfection liquid	<ul style="list-style-type: none">• Physiotherapist
Airway clearance techniques	30	–	<ul style="list-style-type: none">• Cough assist• Modified Ambu bag• Abdominal binder• Treatment table• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Single-use masks	<ul style="list-style-type: none">• Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Heart functions					
Assessment of heart functions	60	–	• Electrocardiographic system	• Electrodes (replaceable sticky)	• Specialist medical practitioner/ PRM physician
Target: Blood pressure functions					
Assessment of blood pressure functions	5	–	• Blood pressure measurement device	–	• Nursing professional • Specialist medical practitioner/ PRM physician
Antihypertensives	5	–	–	• Midodrine	• Specialist medical practitioner/ PRM physician
Provision and training in the use of products for compression therapy	15	• Products for compression therapy (garments, stockings, bandages) • Abdominal binder	–	–	• Nursing professional • Occupational therapist • Physiotherapist
Target: Oedema control					
Assessment of oedema	10	–	• Measuring tape	–	• Nursing professional • Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
Positioning for oedema control	10	–	• Pillows • Foam rollers/wedges	–	• Nursing professional • Occupational therapist • Physiotherapist
Provision and training in the use of products for compression therapy	15	• Products for compression therapy (garments, stockings, bandages)	–	–	• Nursing professional • Occupational therapist • Physiotherapist
Target: Autonomic dysreflexia					
Fast-acting antihypertensives	5	–	–	• Glyceryl trinitrate • Captopril • Nifedipine	• Specialist medical practitioner/ PRM physician

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Mobility of joint functions					
Assessment of joint mobility	10	-	<ul style="list-style-type: none">• Treatment table• Goniometer• Measuring tape	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Range of motion exercises	15	-	<ul style="list-style-type: none">• Treatment table	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Positioning for the prevention of contractures (incl. weight- bearing)	10	<ul style="list-style-type: none">• Orthoses, lower limb• Orthoses, upper limb	<ul style="list-style-type: none">• Standing frame• Pillows• Foam rollers/wedges• Orthoses kit• Splinting kit (static/dynamic)	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
Target: Muscle power functions					
Assessment of muscle functions	20	-	<ul style="list-style-type: none">• Treatment table• Handheld dynamometer	-	<ul style="list-style-type: none">• Physiotherapist• Occupational therapist• Specialist medical practitioner/ PRM physician
Muscle-strengthening exercises	20	-	<ul style="list-style-type: none">• Treatment table• Weights• Resistance bands• Exercise mat• Resistive exercise putty	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Neuromuscular electrical stimulation (incl. functional electrical stimulation)	30	-	<ul style="list-style-type: none">• (Functional) electrical stimulation kit	<ul style="list-style-type: none">• Alcohol wipes• Replaceable sticky electrode pads• Gel	<ul style="list-style-type: none">• Physiotherapist• Occupational therapist
Target: Muscle tone functions (spasticity)					
Assessment of muscle tone functions	20	-	<ul style="list-style-type: none">• Treatment table• Reflex hammer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Oral muscle relaxants	5	-	-	<ul style="list-style-type: none">• Tizanidine• Benzodiazepine• Baclofen	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Chemodenervation	30	-	<ul style="list-style-type: none"> • Treatment table • Ultrasound scanner 	<ul style="list-style-type: none"> • Botulinum toxin • Phenol • Gloves • Alcohol wipes • Needles and syringes • Gel 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
Antispastic pattern positioning	10	-	<ul style="list-style-type: none"> • Pillows • Foam rollers/wedges 	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Physiotherapist
Stretching	15	-	<ul style="list-style-type: none"> • Treatment table • Exercise mat 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Target: Involuntary movement reaction functions (balance)					
Assessment of balance	20	-	<ul style="list-style-type: none"> • Timer • Measuring tape 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
Balance training	20	-	<ul style="list-style-type: none"> • Standing frames, adjustable • Balance board/cushion • Exercise mat • Timer 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Target: Gait pattern functions and walking					
Assessment of gait pattern and walking	30	-	<ul style="list-style-type: none"> • Timer • Measuring tape • Parallel bars 	-	<ul style="list-style-type: none"> • Physiotherapist
Gait training	30	-	<ul style="list-style-type: none"> • Assistant support belt • Canes/sticks/tetrapod • Crutches, axillary/elbow • Mobile mirror • Parallel bar • Rollators • Training stairs • Walking frames/walkers • (Treadmill) 	-	<ul style="list-style-type: none"> • Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Mobility					
Assessment of mobility	30	–	<ul style="list-style-type: none">• Transfer boards/slide sheet• Ramps (temporary/mobile)• Timer	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Mobility training	30	–	<ul style="list-style-type: none">• Exercise mat• Cones• Ramps (temporary/mobile)• Steps (stackable)• Stools/small benches of varying height• Training stairs• Transfer boards/slide sheet	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Functional positioning	10	<ul style="list-style-type: none">• Adapted seating• Adaptive wheelchair seating (front table, hand plate, tray table)	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges	–	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
Provision and training in the use of assistive products for mobility	30	<ul style="list-style-type: none">• Cane/sticks/tetrapod• Crutches, axillary/elbow• Rollators• Walking frames/walkers• Orthoses, lower limb• Slide sheet• Transfer boards• Hoist and slings• Wheelchair (manual or electrical)• Front table (for wheelchair)• Pressure cushion• Tricycle (arm- or leg-powered)	<ul style="list-style-type: none">• Casting kit• Splinting kit (static/dynamic)• Orthoses kit• Measuring tape	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Prosthetist and orthotist
Target: Hand and arm use					
Assessment of hand and arm use	20	–	<ul style="list-style-type: none">• Upper limb workstation• Utensils for activities of daily living	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Functional training for hand and arm use	20	–	<ul style="list-style-type: none">• Upper limb workstation• Utensils for activities of daily living	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Exercise and fitness	Target: Exercise tolerance functions					
	Assessment of exercise capacity	30	-	<ul style="list-style-type: none">• Timer• Cycle ergometer (arm or leg)• Heart rate monitor	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Fitness training	30	-	<ul style="list-style-type: none">• Cycle ergometer (arm or leg)• Exercise mat• Resistance bands• Weights• Exercise ball• Timer	-	<ul style="list-style-type: none">• Physiotherapist
Activities of daily living	Target: Activities of daily living (ADL)					
	Assessment of ADL	30	-	<ul style="list-style-type: none">• Utensils for activities of daily living	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	ADL training	30	-	<ul style="list-style-type: none">• Utensils for activities of daily living• Assistive products for toileting• Adapted eating and drinking products• Assistive products for dressing	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Provision and training in the use of assistive products for self-care	30	<ul style="list-style-type: none">• Assistive products for toileting• Adapted eating and drinking products• Assistive products for washing and dressing• Orthoses, upper limb (including splints)	<ul style="list-style-type: none">• Orthoses kit• Casting kit• Splinting kit (static/dynamic)	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Prosthetist and orthotist
	Modification of the home environment	60	<ul style="list-style-type: none">• Handrail/grab bars• Ramps, portable	<ul style="list-style-type: none">• Measuring tape	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Interpersonal interactions and relationships	Target: Interpersonal interactions and relationships					
	Assessment of interpersonal interactions and relationships	30	-	-	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist
	Psychological support	45	-	-	-	<ul style="list-style-type: none">• Psychologist
Education and vocation	Target: Education					
	Educational assessment	60	-	<ul style="list-style-type: none">• School-related tools and equipment	-	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional• Special educator
	Educational counselling, training, or support	60	-	<ul style="list-style-type: none">• School-related tools and equipment	<ul style="list-style-type: none">• Information materials (e.g. flyers, brochures)	<ul style="list-style-type: none">• Occupational therapist• Social work and counselling professional• Special educator
	Modification of the school environment	60	<ul style="list-style-type: none">• Handrail/grab bar• Ramps, portable	<ul style="list-style-type: none">• Measuring tape	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Target: Work and employment					
	Vocational assessment	90	-	<ul style="list-style-type: none">• Work-related tools and equipment	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Social work and counselling professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Education and vocation	Vocational counselling, training, or support	60	–	• Work-related tools and equipment	–	• Occupational therapist • Physiotherapist • Social work and counselling professional
	Provision and training in the use of assistive products for work	30	• Assistive products to adapt workstation	–	–	• Occupational therapist • Physiotherapist
	Modification of the workplace environment	60	• Handrail/grab bar • Ramps, portable	• Measuring tape	–	• Occupational therapist • Physiotherapist
Community and social life	Target: Participation in community and social life					
	Assessment of participation in community and social life	20	–	–	–	• Occupational therapist • Social work and counselling professional
	Participation focused interventions	60	–	• Equipment for sport and recreational and leisure activities	–	• Occupational therapist • Physiotherapist • Social work and counselling professional
	Peer support	45	–	–	• Information materials (e.g. flyers, brochures)	• Peer counsellor
Lifestyle modification	Target: Healthy lifestyle					
	Assessment of lifestyle risk factors	20	–	• Measuring tape • Scale weight	–	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician
	Education, advice and support for healthy lifestyle	45	–	–	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Self-management	Target: Self-management					
	Education, advice and support for self-management of the health condition	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Peer counsellor • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician
	Education and advice on self-directed exercises	45	-	-	• Information materials (e.g. flyers, brochures)	• Occupational therapist • Physiotherapist
Carer and family support	Target: Carer and family support					
	Assessment of carer and family needs	30	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional
	Carer and family training and support	45	-	-	• Information materials (e.g. flyers, brochures)	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional

ADL: activity of daily living; BiPAP: bilevel positive airway pressure; CPAP: continuous positive airway pressure; NSAID: non-steroidal anti-inflammatory drug; PRM: physical and rehabilitation medicine; TENS: transcutaneous electrical nerve stimulation.

Interventions for the prevention and treatment of secondary conditions related to spinal cord injury

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental health	Target: Mental health (in particular depression, anxiety, emotional distress)					
	Assessment of mental health	60	-	-	-	• Psychologist • Specialist medical practitioner/PRM physician
	Antidepressants (for depression)	5	-	-	• Antidepressants	• Specialist medical practitioner/PRM physician
	Psychological therapies (incl. cognitive behavioural therapy)	60	-	-	-	• Psychologist
	Physical exercise training	30	-	• Timer • Exercise mats • Resistance bands • Weights • Cycle ergometer (arm or leg)	-	• Physiotherapist
	Stress management training	30	-	-	-	• Psychologist
Malnutrition	Target: Malnutrition, pressure ulcers and defecation problems					
	Assessment of nutritional status (incl. body composition and nutrition needs)	20	-	• Measuring tape • Scale weight (wheelchair accessible)	-	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/PRM physician
	Nutritional management (incl. managing appropriate nutrition and weight management)	30	-	-	• Nutritional supplements • Nutritional diary	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/PRM physician
	Enteral nutrition	15	-	• Feeding machine (pump)	• Food thickeners • Nutritional supplements • Syringes • Feeding tubes	• Dietitian and nutritionist • Nursing professional Specialist medical practitioner/PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Pressure ulcer	Target: Pressure ulcers					
	Assessment of the skin (incl. risk factors for skin damage)	10	-	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
	Skin/wound care	15	-	-	<ul style="list-style-type: none">• Moisturizing product• Barrier product• Cleansing product• Cleansing solutions with antimicrobials• Topical antiseptics• Wound dressings	<ul style="list-style-type: none">• Nursing professional• Specialist medical practitioner/ PRM physician
	Positioning for pressure relief	10	<ul style="list-style-type: none">• Pressure relief cushions	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Provision and training in the use of assistive products for pressure relief	15	<ul style="list-style-type: none">• Pressure relief products (mattress and cushions)	<ul style="list-style-type: none">• Pressure mapping devices	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Referral to pressure ulcer surgery	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Sleep apnea	Target: Sleep apnea					
	Referral to specialized service (for assessment of sleep apnea)	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Deep venous thromboembolism	Target: Deep venous thromboembolism					
	Anticoagulants	5	-	-	<ul style="list-style-type: none">• Low-molecular-weight heparin• Unfractionated heparin• Direct oral anticoagulants• Vitamin K antagonist	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Osteoporosis and fractures	Target: Osteoporosis and fractures					
	Referral for assessment of bone health (DEXA)	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Nutritional supplements	5	-	-	<ul style="list-style-type: none">• Vitamin D• Calcium	<ul style="list-style-type: none">• Dietitian and nutritionist• Specialist medical practitioner/ PRM physician
Heterotopic ossification	Target: Heterotopic ossification					
	Bisphosphonates	5	-	-	<ul style="list-style-type: none">• Bisposphonates	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Nonsteroidal anti-inflammatory drugs (NSAIDs)	5	-	-	<ul style="list-style-type: none">• NSAIDs	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

NSAID: non-steroidal anti-inflammatory drug; PRM: physical and rehabilitation medicine.

Summary of the required material resources and workforce

Material resources

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
Products for communication <ul style="list-style-type: none"> • Communication boards/books/cards • Communication software • In-line speaking valves • Simplified mobile phones 	Specific for assessments <ul style="list-style-type: none"> • Blood pressure measurement device • Cognitive test equipment • Flexible laryngoscopy equipment • Goniometer • Handheld dynamometer • Heart rate monitor • Lead apron • Measuring tape • Microscope • Peak flow meter • Penile vibratory stimulation (PVS) device • Pressure mapping devices • Pulse oximeter • Reflex hammer • Spirometer • Stethoscope • Thyroid shield • Ultrasound scanner • Videofluoroscopic equipment • Scale weight (wheelchair accessible) 	<ul style="list-style-type: none"> • Alcohol wipes • Aprons • Barrier product • Catheter bags • Cleansing product • Cleansing solutions with antimicrobials • Diapers • Disinfection liquid • Dropper • Electrodes (replaceable sticky) • Face masks • Feeding tubes • Filter • Food dye • Food thickeners • Food/drink with different consistencies • Gel • Gloves • Indwelling catheter kit • Information materials (e.g. flyers, brochures) • Insertion devices for rectal medications • Intermittent catheter kit • Liquid and powder barium • Medical tape • Modified liquids and solids • Moisturizing product • Mouthpieces • Needles and syringes • Nose clips • Nutritional diary • Oral anesthetic spray • Oral swabs • Replaceable sticky electrode pads • Speaking valve and tracheostomy cap • Specimen cup • Straws • Syringes • Tissues • Tongue depressor • Topical antiseptics • Tubing • Wound dressings
Products for self-care <ul style="list-style-type: none"> • Adapted eating and drinking products • Adapted seating • Assistive products for toileting • Assistive products for dressing • Abdominal binder • Incontinence products (absorbent) • Indwelling catheter kits • Intermittent catheter kits • Products for compression therapy (garments, stockings, bandages) 	For interventions <ul style="list-style-type: none"> • (Adapted) eating and drinking products • Assistive products for dressing • Assistive products for toileting • Utensils for activities of daily living • Communication boards/books/cards • Computer/tablets with (communication) software • Respiratory resistance training devices • Abdominal binder • Cough assist • Invasive ventilation equipment • Non-invasive ventilation equipment (for CPAP and BiPAP) • Ventilator • Modified Ambu bag • Feeding machine (pump) • Suction machine • Spit basin • Blender • Canes/sticks/tetrapod • Crutches, axillary/elbow • Rollators 	
Products for mobility <ul style="list-style-type: none"> • Adaptive wheelchair seating • Cane/sticks/tetrapod • Crutches, axillary/elbow • Front table (for wheelchair) • Handrail/grab bar • Hoist and slings • Orthoses, lower limb • Orthoses, upper limb (including splints) • Pressure relief products (mattress and cushions) • Ramps, portable • Rollators • Transfer boards/slide sheets • Tricycle (arm- or leg-powered) • Walking frames/walkers • Wheelchair (manual or electrical) 		
Other <ul style="list-style-type: none"> • Assistive products to adapt workstation 		

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
	<ul style="list-style-type: none"> • Standing frames, adjustable • Walking frames/walkers • Wheelchair (manual or electrical) • Casting kit • Orthoses kit • Splinting kit (static/dynamic) • Assistant support belt • Transfer boards/slide sheet • Foam rollers/wedges • Pillows • Treatment table • Stools/small benches of varying height • (Functional) electrical stimulation kit • TENS Supply kit • Resistance bands • Resistive exercise putty • Weights • Exercise mat • Exercise ball • Balance board/cushion • Training stairs • Steps (stackable) • Ramps (temporary/mobile) • Mobile mirror • Parallel bar • Timer • Cycle ergometer (arm or leg) • Upper limb workstation • Equipment for sport and recreational and leisure activities • Assistive products for recreational and leisure activities • School-related tools and equipment • Work-related tools and equipment 	Medicines <ul style="list-style-type: none"> • Alpha-1-blockers • Amitriptyline Anticholinergica • Antidepressants • Baclofen • Benzodiazepine • Bisphosphonates • Botulinum toxin • Calcium • Captopril • Direct oral anticoagulants • Glyceryl trinitrate • Iodinated contrast pharmacological agents • Low-molecular-weight heparin • Laxatives • Midodrine • Nifedipine • Nutritional supplements • Oral NSAIDs • Oxygen • Phenol • Phosphodiesterase-5 inhibitors • Tizanidine • Unfractionated heparin • Vitamin D • Vitamin K antagonist

BiPAP: bilevel positive airway pressure; CPAP: continuous positive airway pressure; NSAID: non-steroidal anti-inflammatory drug; TENS: transcutaneous electrical nerve stimulation.

Workforce

Overview of rehabilitation specialists qualified to deliver interventions for rehabilitation for spinal cord injury (in alphabetical order)

- Dietitians and nutritionists
- Nursing professionals
- Occupational therapists
- Physiotherapists
- Prosthetists and orthotists
- Psychologists
- Social work and counselling professionals
- Specialist medical practitioners/PRM physicians
- Speech and language therapists/pathologists

PRM: physical and rehabilitation medicine.

4.3 Members of the working groups

The following experts have contributed to the development of the *Package of interventions for rehabilitation for spinal cord injury* along the different development steps and using the listed clinical practice guidelines and Cochrane systematic reviews. See Annex 2 for a summary of declarations of interest.

Members of the technical working group

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Members of the peer review group

Fin BIERING-SØERENSEN (Medical doctor, Denmark); Vanessa BOCHKEZANIAN (Physiotherapist, Australia/Argentina); Philippines CABAUG (PRM physician, Philippines); Janet DEAN (Nurse, USA); Sameera HAFFAJEE (Physiotherapist, South Africa); Lisa HARVEY (Physiotherapist, Australia); Annemie HESELMANS (Consumer representative, Belgium); Huzaifa Shehu IMAM (Physiotherapist, Nigeria); Safaa MAHRAN (PRM physician, Egypt); Jacqueline McRAE (Speech and language pathologist, United Kingdom); Federico MONTERO (PRM physician, Costa Rica); Susan NEWMAN (Nurse, USA); Colleen O'CONNELL (PRM physician, Canada); Shivjeet RAGHAW (Rehabilitation counsellor, India); Manoj Kumar RANABHAT (Occupational therapist, Nepal); Christina-Anastasia RAPIDI (PRM physician, Greece); Gordon RATTRAY (Consumer representative, United Kingdom/Belgium); Lode SABBE (Occupational therapist, Belgium); Marcia SCHERER (PRM physician, USA); Nicoline SCHIESS (WHO Medical officer, Switzerland); Giorgio SCIVOLETTO (PRM physician, Italy); Tijn VAN DIEMEN (Psychologist, Netherlands); Yang WANG (Occupational therapist, China); Eric WEERTS (Physiotherapist, Belgium).

Nicoline SCHIESS (Medical officer, Brain Health Unit, WHO Mental Health and Substance Use Department) provided valuable feedback relevant to the final development of the *Package of interventions for rehabilitation for spinal cord injury*.

4.4 References

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2. GBD 2016 Traumatic Brain Injury and Spinal Cord Injury Collaborators. Global, regional, and national burden of traumatic brain injury and spinal cord injury, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Neurol* 2019;18:56–87.
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4. mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0. Geneva; World Health Organization, 2016 (<https://apps.who.int/iris/handle/10665/250239>, accessed December 2022).
5. WHO Model List of Essential Medicines. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/345533>, accessed November 2022).

5 Package of interventions for rehabilitation for cerebral palsy

5.1 About cerebral palsy

Cerebral palsy describes a group of permanent disorders of the development of movement and posture that cause activity limitation, and are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain (1). Globally, the prevalence of cerebral palsy is estimated to range from 1.5 to more than 4 per 1000 live births or children within a defined age range. The overall birth prevalence of cerebral palsy is approximately 2 per 1000 live births (2).

Cerebral palsy is caused by a problem with the brain, such as infection, bleeding, injury or reduced oxygen supply, that develops before, during, or soon after birth. It is characterized by non-progressive impairments in the development of motor function and posture, which are frequently associated with communication, behaviour, cognition, sensation, perception, and musculoskeletal disturbances (3).

Individuals with cerebral palsy experience varied levels of functional limitations that include, but are not limited to, difficulties with mobility, communication, and eating. Motor disorders can be classified as spastic (unilateral or bilateral spastic), dyskinetic (dystonic or choreoathetotic) and ataxic (4). In addition to motor impairment, people with cerebral palsy often experience problems with speech and communication, swallowing, feeding and nutrition, and cognitive impairments (2). Related to the severity of the symptoms, cerebral palsy can significantly impact an individual's ability to function in everyday life.

Role of rehabilitation in cerebral palsy

It is estimated that in 2019, 50 million people worldwide were living with cerebral palsy who could benefit from rehabilitation (5). Although there is no cure, a broad range of interventions, from early childhood and across the life span, can optimize the development, functioning, health, well-being, and quality of life of people living with the condition. Rehabilitation considers the individual under all aspects – physical, mental, emotional, communicative, and relational, and involves their familial, social, and environmental context. It is an integrated multidisciplinary endeavour that targets cognitive, psychological, physical, and social aspects of functioning with the goal of enhancing quality of life, minimizing disability, promoting independence, and enabling participation (6).

Target population for the Package of interventions for rehabilitation for cerebral palsy

This *Package of interventions of rehabilitation for cerebral palsy* is intended to be used for children, adolescents and adults with spastic (ICD-11: 8D20 Spastic cerebral palsy), dyskinetic (ICD-11: 8D21 Dyskinetic cerebral palsy) or atactic (ICD-11: 8D22 Ataxic cerebral palsy) cerebral palsy at all levels of severity, and along the life course.

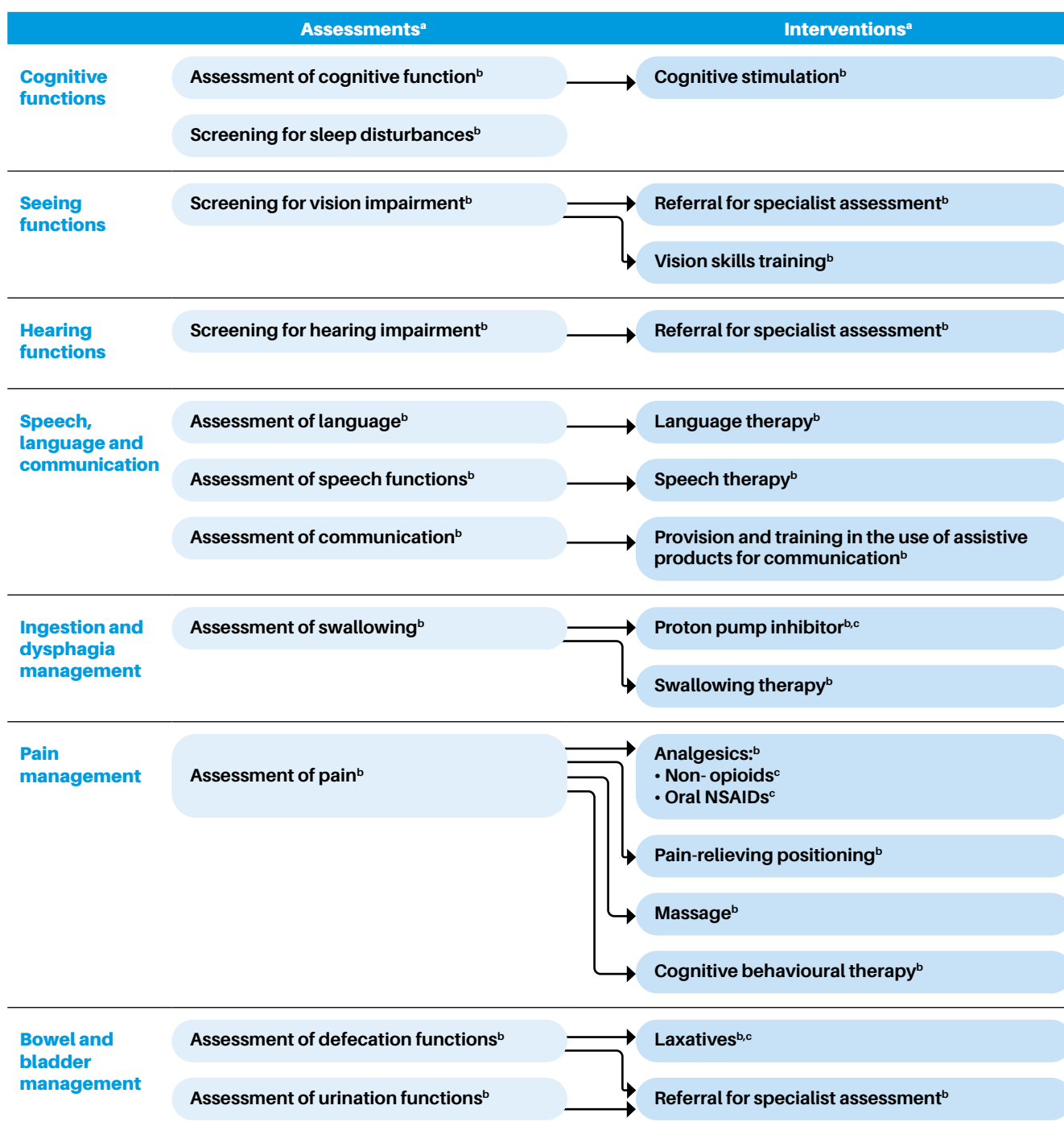
Important links to other WHO products relevant for the care of people with cerebral palsy:

- *mhGAP Intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health GAP Action Programme (mhGAP) – version 2.0 (7).*
- *WHO Model List of Essential Medicines (8).*

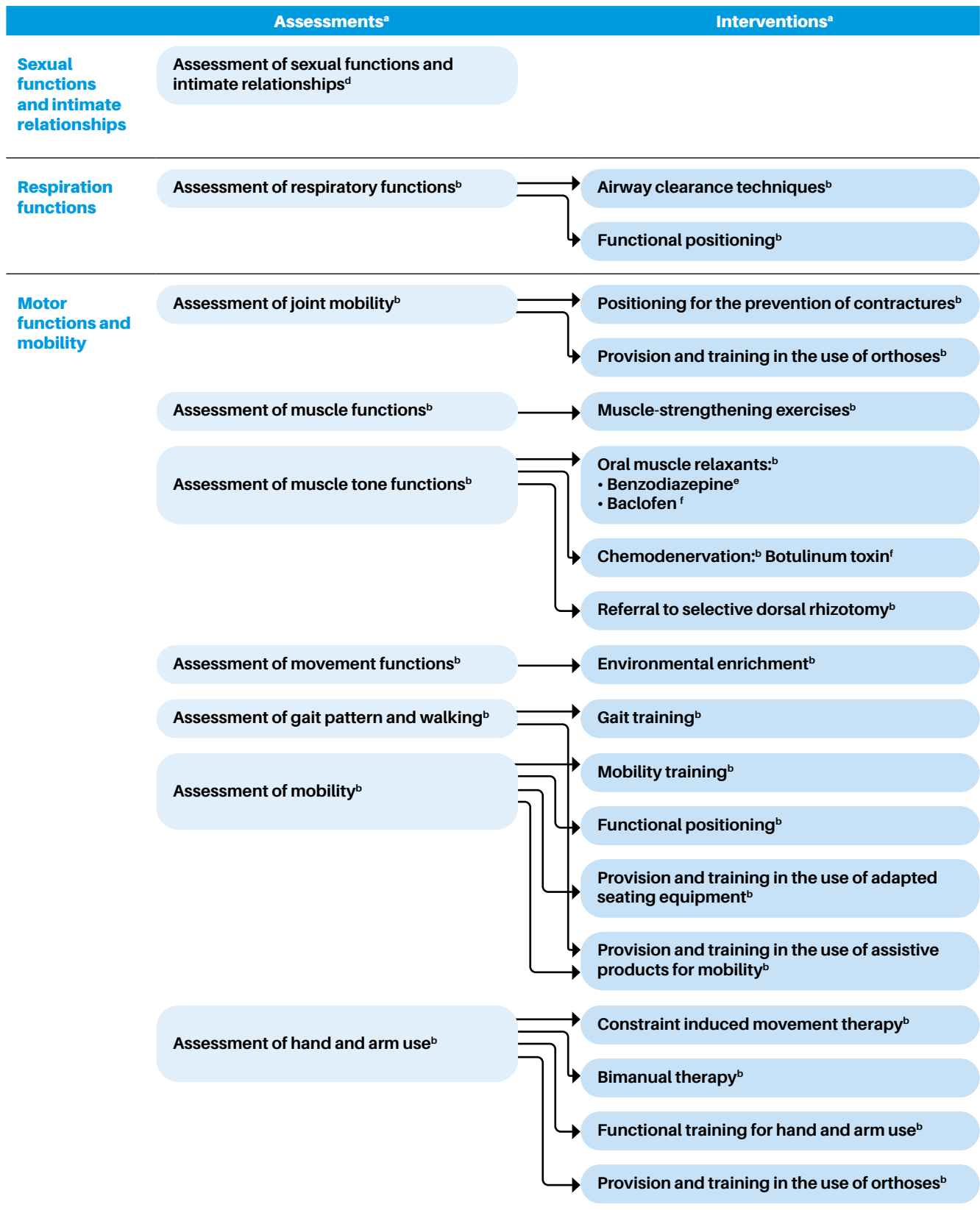
5.2 Content of the Package of interventions for rehabilitation for cerebral palsy

Overview of the interventions for rehabilitation in cerebral palsy

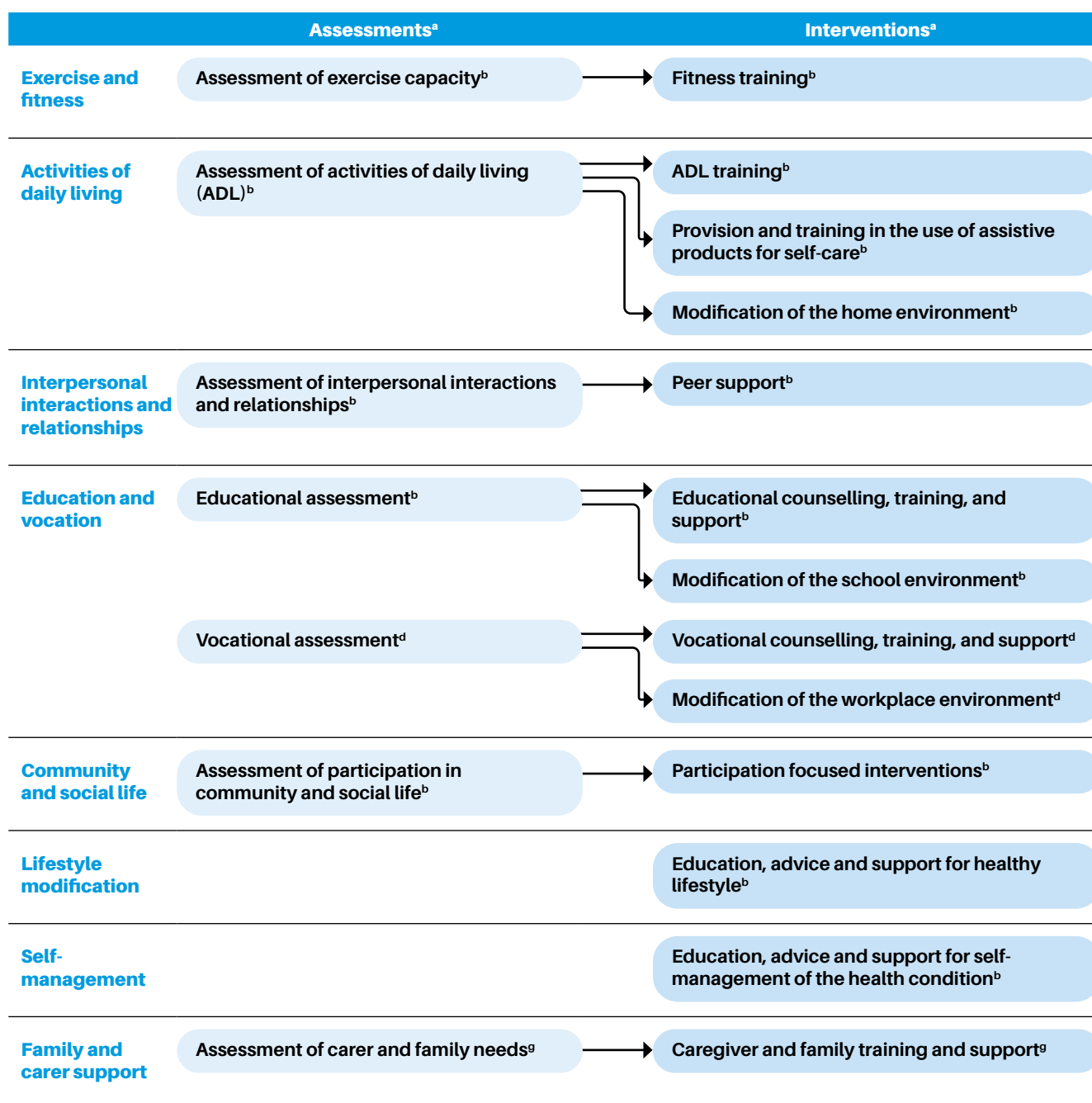
Functioning interventions



[cont.]



[cont.]



^a See Annex 1 for definitions of assessments and interventions.

^b Children, adolescents and adults with cerebral palsy.

^c Medicines are included in WHO Model List of Essential Medicines (8).

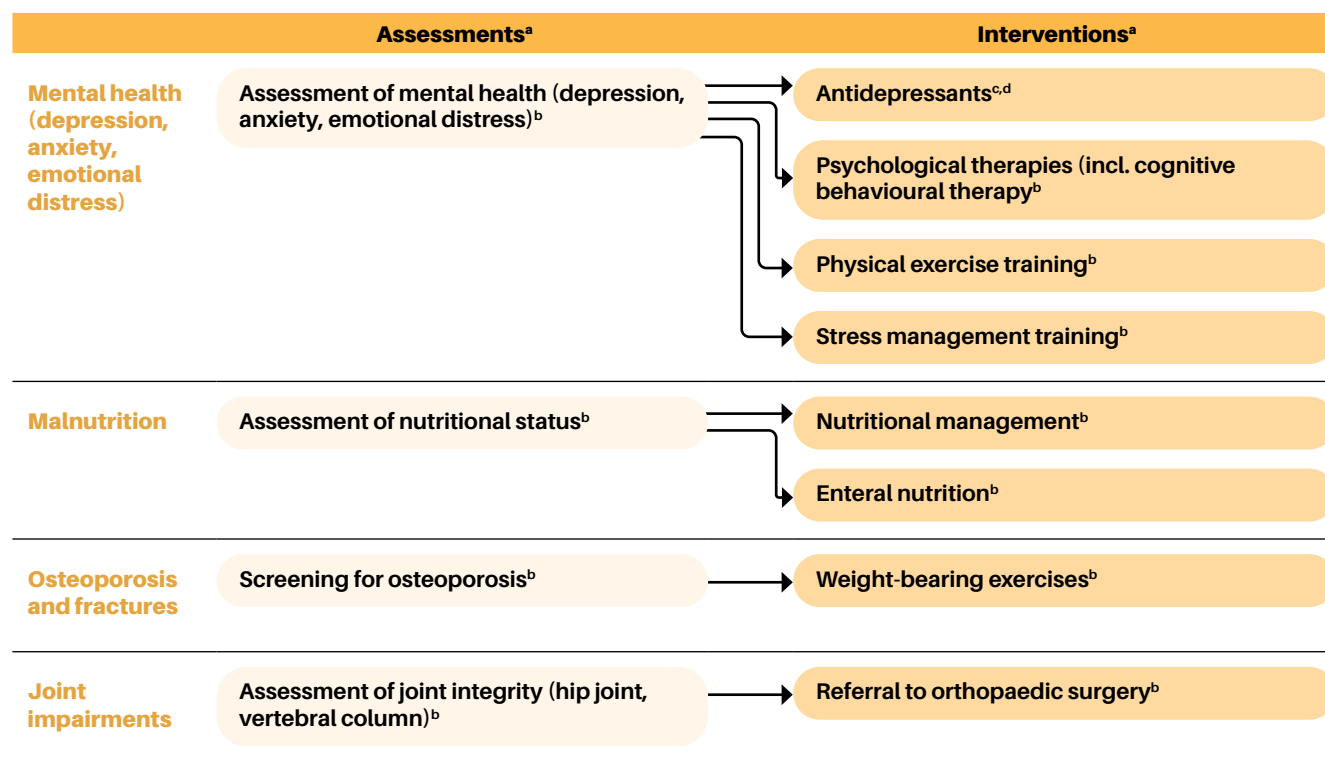
^d Adolescents and adults with cerebral palsy.

^e Medicine is included in WHO Model List of Essential Medicines (8) but for another indication.

^f Medicine has not yet been evaluated for inclusion in WHO Model List of Essential Medicines (8).

^g Carers and family members of children, adolescents and adults with cerebral palsy.

Interventions for the prevention and treatment of secondary conditions related to cerebral palsy



^a See Annex 1 for definitions of assessments and interventions.

^b Children, adolescents and adults with cerebral palsy.

^c Adults with cerebral palsy, and moderate or severe depression and anxiety.

^d Medicines are included in WHO Model List of Essential Medicines (8).

Overview of the resources required for rehabilitation in cerebral palsy

Functioning interventions

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Target: Cognitive functions					
	Assessment of cognitive functions	60	-	<ul style="list-style-type: none">• Computer/tablets with software• Cognitive test equipment• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist• Specialist medical practitioner/PRM physician
	Cognitive stimulation	30	-	<ul style="list-style-type: none">• Reading materials• Media (incl. television, music player)• Everyday objects	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist
	Target: Sleep functions					
	Screening for sleep disturbances	15	-	-	-	<ul style="list-style-type: none">• Psychologist• Specialist medical practitioner/PRM physician
Vision	Target: Seeing functions					
	Screening for vision impairment	20	-	<ul style="list-style-type: none">• Vision screening charts for near and distance• Pinhole occluder• Measuring tape• Torch• Colour vision test chart	-	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Referral for specialist assessment	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Vision skills training	20	-	<ul style="list-style-type: none">• Computer/tablets with software• Reading materials and pictures	-	<ul style="list-style-type: none">• Occupational therapist
Hearing	Target: Hearing functions					
	Screening for hearing impairment	10	-	<ul style="list-style-type: none">• Audiometer	-	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Referral or specialist assessment	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Cognitive functions of language					
Assessment of language	45	–	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/ cards• Timer• Reading materials and pictures• Everyday objects/toys	–	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist
Language therapy	45	–	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/ cards• Timer• Reading materials and pictures• Everyday objects/(sound-making) toys	–	<ul style="list-style-type: none">• Speech and language therapist/pathologist
Target: Speech functions					
Assessment of speech functions	45	–	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Recorders (video and audio)• Timer• Mirror• Reading materials and pictures• Everyday objects/toys	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician• Speech and language therapist/pathologist
Speech therapy	45	–	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Recorders (video and audio)• Timer• Mirror• Metronome• Reading materials and pictures• Everyday objects/toys	<ul style="list-style-type: none">• Gloves• Straws• Tongue depressor• Tissues• Face masks	<ul style="list-style-type: none">• Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Speech, language and communication	Target: Communication					
	Assessment of communication	30	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/cards• Recorders (video and audio)• Reading materials and pictures• (Sound-making) toys• Pointers	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
	Provision and training in the use of assistive products for communication	45	<ul style="list-style-type: none">• Communication boards/books/cards• Simplified mobile phones• Communication software• Recorders	-	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
Dysphagia management	Target: Swallowing functions					
	Assessment of swallowing	45	-	<ul style="list-style-type: none">• Flexible laryngoscopy equipment• Videofluoroscopic equipment• Lead apron• Thyroid shield• Suction machine• (Adapted) eating and drinking utensils (e.g. spoon, cup)	<ul style="list-style-type: none">• Food dye• Food and liquids with different consistencies• Oral swabs• Straws• Tongue depressor• Oral anesthetic spray• Iodinated contrast• Liquid and powder barium• Gloves	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Specialist medical practitioner/PRM physician• Speech and language therapist/pathologist
	Proton pump inhibitor	5	-	-	<ul style="list-style-type: none">• Proton pump inhibitor	<ul style="list-style-type: none">• Specialist medical practitioner/PRM physician
	Swallowing therapy	30	-	<ul style="list-style-type: none">• Spit basin• Suction machine• (Adapted) eating and drinking products• Blender• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Food thickeners• Modified liquids and solids• Straws• Dropper• Oral swabs• Gloves• Apron	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Sensation of pain	Target: Sensation of pain					
	Assessment of pain	30	-	-	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Analgesics	5	-	-	<ul style="list-style-type: none">• Non-opioids (Ibuprofen)• Non-steroidal anti-inflammatory drugs (Paracetamol)	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Pain-relieving positioning	10	-	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges• Adapted seating• Adaptive wheelchair seating	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Massage	20	-	<ul style="list-style-type: none">• Treatment table• Pillows• Foam rollers/wedges	<ul style="list-style-type: none">• Massage lotion	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Cognitive behavioural therapy	60	-	-	-	<ul style="list-style-type: none">• Psychologist
Bowel and bladder management	Target: Defecation functions					
	Assessment of defecation functions	20	-	-	-	<ul style="list-style-type: none">• Nursing professional• Specialist medical practitioner/ PRM physician
	Referral to specialist assessment	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Laxatives	5	-	<ul style="list-style-type: none">• Insertion devices for rectal medications	<ul style="list-style-type: none">• Laxatives• Lubricant• Gloves	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Target: Urination functions					
	Assessment of urination functions	20	-	-	-	<ul style="list-style-type: none">• Nursing professional• Specialist medical practitioner/ PRM physician
	Referral to specialist assessment	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Sexual functions and intimate relationships	Target: Sexual functions and intimate relationships					
	Assessment of sexual functions and intimate relationships	45	-	-	-	<ul style="list-style-type: none">• Psychologist• Specialist medical practitioner/PRM physician
Respiratory functions	Target: Respiration functions					
	Assessment of respiratory functions	30	-	<ul style="list-style-type: none">• Spirometer• Stethoscope• Peak flow meter• Pulse oximeter	<ul style="list-style-type: none">• Mouthpieces• Filter• Nose clips• Disinfection liquid	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/PRM physician
	Airway clearance techniques	30	-	<ul style="list-style-type: none">• Treatment table• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Physiotherapist
	Functional positioning	10	<ul style="list-style-type: none">• Adapted seating• Adaptive wheelchair seating (front table, hand plate, tray table)	<ul style="list-style-type: none">• Standing frames (adjustable)• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Mobility of joint functions					
Assessment of joint mobility	10	–	<ul style="list-style-type: none">• Treatment table• Goniometer• Measuring tape	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Positioning for the prevention of contractures	10	<ul style="list-style-type: none">• Orthoses, lower limb• Orthoses, upper limb (including splints)	<ul style="list-style-type: none">• Standing frame• Pillows• Foam rollers/wedges• Orthoses kit• Splinting kit (static/dynamic)	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
Provision and training in the use of orthoses	60	<ul style="list-style-type: none">• Orthoses, lower limb• Orthoses, upper limb (including splints)	<ul style="list-style-type: none">• Casting kit• Splinting kit (static/dynamic)• Orthoses kit	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Prosthetist and orthotist
Target: Muscle power functions					
Assessment of muscle functions	20	–	<ul style="list-style-type: none">• Treatment table• Handheld dynamometer	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Muscle-strengthening exercises	20	–	<ul style="list-style-type: none">• Treatment table• Weights• Resistance bands• Resistive exercise putty• Exercise mat	–	<ul style="list-style-type: none">• Physiotherapist• Occupational therapist
Target: Muscle tone functions					
Assessment of muscle tone functions	20	–	<ul style="list-style-type: none">• Treatment table• Reflex hammer	–	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
Oral muscle relaxants	5	–	–	<ul style="list-style-type: none">• Benzodiazepine• Baclofen	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Motor functions and mobility	Chemodenervation	30	-	<ul style="list-style-type: none"> • Treatment table • Ultrasound scanner 	<ul style="list-style-type: none"> • Botulinum toxin • Gloves • Alcohol wipes • Needles and syringes • Ultrasound gel 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Referral to selective dorsal rhizotomy	5	-	-	-	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician
	Target: Movement functions					
	Assessment of movement functions	30	-	<ul style="list-style-type: none"> • Timer • Measuring tape 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician
	Environmental enrichment	30	-	<ul style="list-style-type: none"> • Games • Toys (for children) • Everyday objects 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Target: Gait pattern functions and walking					
	Assessment of gait pattern and walking	30	-	<ul style="list-style-type: none"> • Timer • Measuring tape • Parallel bars 	-	<ul style="list-style-type: none"> • Physiotherapist
	Gait training	30	-	<ul style="list-style-type: none"> • Assistant support belt • Canes/sticks/tetrapod • Crutches, axillary/elbow • Mobile mirror • Parallel bar • Rollators • Training stairs • Walking frames/walkers • (Treadmill) 	-	<ul style="list-style-type: none"> • Physiotherapist
	Target: Mobility					
	Assessment of mobility	30	-	<ul style="list-style-type: none"> • Transfer boards/slide sheet • Ramps (temporary/mobile) • Timer 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Specialist medical practitioner/ PRM physician

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Mobility training	30	-	<ul style="list-style-type: none"> • Exercise mat • Cones • Ramps (temporary/mobile) • Steps (stackable) • Stools/small benches of varying height • Training stairs • Transfer boards/slide sheet 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Functional positioning	10	<ul style="list-style-type: none"> • Adapted seating • Adaptive wheelchair seating (front table, hand plate, tray table) 	<ul style="list-style-type: none"> • Pillows • Foam rollers/wedges 	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Physiotherapist
Provision and training in the use of adapted seating equipment	60	<ul style="list-style-type: none"> • Adapted seating • Adaptive wheelchair seating • Corner seat 	-	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Provision and training in the use of assistive products for mobility	30	<ul style="list-style-type: none"> • Canes/sticks/tetrapod • Crutches, axillary/elbow • Rollators • Walking frames/walkers • Orthoses (lower limb) • Wheelchair (manual or electrical) • Front table (for wheelchair) • Pressure cushion • Tricycle (arm- or leg-powered) 	<ul style="list-style-type: none"> • Casting kit • Splinting kit (static/dynamic) • Orthoses kit • Measuring tape 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
Target: Hand and arm use					
Assessment of hand arm use	20	-	<ul style="list-style-type: none"> • Upper limb workstation • Utensils for activities of daily living 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Motor functions and mobility	Constraint induced movement therapy	60	-	<ul style="list-style-type: none"> • Socks • Mittens • Gloves • Arm activity kit • Everyday objects/toys • Casting kit • Splinting kit 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Bimanual therapy	20	-	<ul style="list-style-type: none"> • Arm activity kit • Toys (for children) • Everyday objects/toys 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Functional training for hand and arm use	20	-	<ul style="list-style-type: none"> • Upper limb workstation • Utensils for activities of daily living 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	Provision and training in the use of orthoses	60	• Orthoses, upper limb (including splints)	<ul style="list-style-type: none"> • Casting kit • Splinting kit (static/dynamic) • Orthoses kit 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist • Prosthetist and orthotist
Exercise and fitness	Target: Exercise tolerance functions					
	Assessment of exercise capacity	30	-	<ul style="list-style-type: none"> • Timer • Cycle ergometer (arm or leg) • Heart rate monitor 	-	<ul style="list-style-type: none"> • Physiotherapist • Specialist medical practitioner/ PRM physician
	Fitness training	30	-	<ul style="list-style-type: none"> • Cycle ergometer (arm or leg) • Exercise mat • Resistance bands • Weights • Exercise ball • Timer 	-	<ul style="list-style-type: none"> • Physiotherapist
Activities of daily living	Target: Activities of daily living (ADL)					
	Assessment of ADL	30	-	<ul style="list-style-type: none"> • Utensils for activities of daily living 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist
	ADL training	30	-	<ul style="list-style-type: none"> • Utensils for activities of daily living • Assistive products for toileting • Adapted eating and drinking products • Assistive products for dressing 	-	<ul style="list-style-type: none"> • Occupational therapist • Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Interpersonal interactions and relationships	Provision and training in the use of assistive products for self-care	30	<ul style="list-style-type: none"> Assistive products for toileting Adapted eating and drinking products Assistive products for dressing 	-	-	<ul style="list-style-type: none"> Nursing professional Occupational therapist Physiotherapist
	Modification of the home environment	60	<ul style="list-style-type: none"> Handrail Ramps, portable 	<ul style="list-style-type: none"> Measuring tape 	-	<ul style="list-style-type: none"> Occupational therapist Physiotherapist
	Target: Interpersonal interactions and relationships					
	Assessment of interpersonal interactions and relationships	30	-	-	-	<ul style="list-style-type: none"> Occupational therapist Psychologist Specialist medical practitioner/ PRM physician
	Peer support	45	-	-	-	<ul style="list-style-type: none"> Peer counsellor
Education and vocation	Target: Education					
	Educational assessment	60	-	<ul style="list-style-type: none"> School-related tools and equipment 	-	<ul style="list-style-type: none"> Occupational therapist Social work and counselling professional Special educator Speech and language therapist/pathologist
	Educational counselling, training, and support	60	-	<ul style="list-style-type: none"> School-related tools and equipment 	<ul style="list-style-type: none"> Information materials (e.g. flyers, brochures) 	<ul style="list-style-type: none"> Occupational therapist Social work and counselling professional Special educator Speech and language therapist/pathologist
	Modification of the school environment	60	<ul style="list-style-type: none"> Handrail/grab bar Ramps, portable 	<ul style="list-style-type: none"> Measuring tape 	-	<ul style="list-style-type: none"> Occupational therapist Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Education and vocation	Target: Work and employment					
	Vocational assessment	90	-	• Work-related tools and equipment	-	• Occupational therapist • Social work and counselling professional
	Vocational counselling, training, and support	60	-	• Work-related tools and equipment	-	• Occupational therapist • Social work and counselling professional
	Modification of the workplace environment	60	• Handrail/grab bar • Ramps, portable	• Measuring tape	-	• Occupational therapist • Physiotherapist
Community and social life	Target: Participation in community and social life					
	Assessment of participation in community and social life	20	-	-	-	• Occupational therapist • Social work and counselling professional
	Participation focused interventions	60	-	• Equipment for sport and recreational activities	-	• Occupational therapist • Physiotherapist • Social work and counselling professional
Lifestyle modification	Target: Healthy lifestyle					
	Education, advice and support for healthy lifestyle	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Physiotherapist • Psychologist • Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Self-management	Target: Self-management					
	Education, advice and support for the self-management of the health condition	45	-	-	• Information materials (e.g. flyers, brochures)	• Dietitian and nutritionist • Nursing professional • Occupational therapist • Peer counsellor • Physiotherapist • Psychologist • Social work and counselling professional • Specialist medical practitioner/ PRM physician
Carer and family support	Target: Carer and family support					
	Assessment of carer and family needs	30	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional
	Caregiver and family training and support	45	-	-	• Information materials (e.g. flyers, brochures)	• Nursing professional • Occupational therapist • Physiotherapist • Psychologist • Social work and counselling professional

ADL: activity of daily living; PRM: physical and rehabilitation medicine.

Interventions for the prevention and treatment of secondary conditions related to cerebral palsy

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental health	Target: Mental health (in particular depression, anxiety, emotional distress)					
	Assessment of mental health	60	-	-	-	• Psychologist • Specialist medical practitioner/PRM physician
	Antidepressants	5	-	-	• Antidepressants	• Specialist medical practitioner/PRM physician
	Psychological therapies (incl. cognitive behavioural therapy)	60	-	-	-	• Psychologist
	Physical exercise training	30	-	• Timer • Exercise mats • Resistance bands • Weights • Cycle ergometer (arm or leg)	-	• Physiotherapist
	Stress management training	30	-	-	-	• Psychologist
Malnutrition	Target: Malnutrition					
	Assessment of nutritional status	20	-	• Scale weight (wheelchair accessible) • Measuring tape	-	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/PRM physician
	Nutritional management	30	-	-	• Nutritional supplements	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/PRM physician
	Enteral nutrition	15	-	• Feeding machine (pump)	• Food thickeners • Nutritional supplements • Syringes • Feeding tubes	• Dietitian and nutritionist • Nursing professional • Specialist medical practitioner/PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Osteoporosis and fractures	Target: Osteoporosis and fractures					
	Screening for osteoporosis	20	-	• General-purpose X-ray system, digital	-	• Specialist medical practitioner/ PRM physician
	Weight-bearing exercises	20	-	• Standing frames • Harness	-	• Occupational therapist • Physiotherapist
Joint integrity	Target: Integrity of hip joints and vertebral column					
	Assessment of joint integrity	20	-	• General-purpose X-ray system, digital	-	• Specialist medical practitioner/ PRM physician
	Referral to orthopaedic surgery	5	-	-	-	• Specialist medical practitioner/ PRM physician

PRM: physical and rehabilitation medicine.

Summary of the required material resources and workforce

Material resources

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
Products for communication <ul style="list-style-type: none"> • Communication boards/ books/cards • Communication software • Recorders • Simplified mobile phones 	Specific for assessment <ul style="list-style-type: none"> • Audiometer • Cognitive test equipment • Colour vision test chart • Flexible laryngoscopy equipment • General-purpose X-ray system, digital • Goniometer • Handheld dynamometer • Heart rate monitor • Lead apron • Measuring tape • Peak flow meter • Pinhole occluder • Pulse oximeter • Reflex hammer • Spirometer • Stethoscope • Thyroid shield • Torch • Ultrasound scanner • Videofluoroscopic equipment • Vision screening charts for near and distance • Scale weight (wheelchair accessible) 	<ul style="list-style-type: none"> • Alcohol wipes • Apron • Disinfection liquid • Dropper • Face masks • Feeding tubes • Filter • Food and liquids with different consistencies • Food dye • Food thickeners • Gloves • Information materials (e.g. flyers, brochures) • Iodinated contrast • Liquid and powder barium • Lubricant • Massage lotion • Modified liquids and solids • Mouthpieces • Needles and syringes • Nose clips • Nutritional supplements • Oral anesthetic spray • Oral swabs • Straws • Syringes • Tissues • Tongue depressor • Ultrasound gel
Products for self-care <ul style="list-style-type: none"> • Adapted eating and drinking products • Assistive products for dressing • Assistive products for toileting 	For intervention <ul style="list-style-type: none"> • Communication boards/ books/cards • Computer/tablets with (communication) software • Metronome • Reading materials and pictures • Recorders (video and audio) • Pointers • (Adapted) eating and drinking products • Assistive products for dressing • Assistive products for toileting • Insertion devices for rectal medications • Utensils for activities of daily living • Everyday objects/toys • Games • Media (incl. television, music player) • Blender • Spit basin • Suction machine • Feeding machine (pump) • Canes/sticks/tetrapod 	Medicines <ul style="list-style-type: none"> • Antidepressants • Baclofen • Benzodiazepine • Botulinum toxin • Laxatives • Non-opioids (incl. Ibuprofen) • NSAIDs (incl. Paracetamol) • Proton pump inhibitor
Products for mobility <ul style="list-style-type: none"> • Adapted seating • Adaptive wheelchair seating (front table, hand plate, tray table) • Canes/sticks/tetrapod • Corner seat • Crutches, axillary/elbow • Front table (for wheelchair) • Handrail/grab bar • Orthoses, lower limb • Orthoses, upper limb (including splints) • Pressure cushion • Ramps, portable • Rollators • Tricycle (arm- or leg-powered) • Walking frames/walkers • Wheelchair (manual or electrical) 		

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
	<ul style="list-style-type: none"> • Crutches, axillary/elbow • Rollators • Standing frames (adjustable) • Walking frames/walkers • Adapted seating • Adaptive wheelchair seating • (Treadmill) • Casting kit • Orthoses kit • Splinting kit (static/dynamic) • Treatment table • Stools/small benches of varying height • Resistance bands • Resistive exercise putty • Weights • Foam rollers/wedges • Pillows • Assistant support belt • Transfer boards/slide sheet • Exercise ball • Exercise mats • Parallel bar • Cones • Ramps (temporary/mobile) • Training stairs • Steps (stackable) • Mirror • Timer • Cycle ergometer (arm or leg) • Arm activity kit • Mittens • Socks • Upper limb workstation • School-related tools and equipment • Work-related tools and equipment • Equipment for sport and recreational activities 	

NSAID: non-steroidal anti-inflammatory drug.

Workforce

Overview of rehabilitation specialists qualified to deliver interventions for rehabilitation for cerebral palsy (in alphabetical order)

- Dietitians and nutritionists
- Nursing professionals
- Occupational therapists
- Physiotherapists
- Prosthetists and orthotists
- Psychologists
- Social work and counselling professionals
- Special educators
- Specialist medical practitioners/PRM physicians
- Speech and language therapists/pathologists

PRM: physical and rehabilitation medicine.

5.3 Members of the working groups

The following experts have contributed to the development of the *Package of interventions for rehabilitation for cerebral palsy* along the different development steps and using the listed clinical practice guidelines and Cochrane systematic reviews. See Annex 2 for a summary of declarations of interest.

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Members of the peer review group

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Chiara SERVILI and Vanessa CAVALLERA (WHO technical officers, Brain Health Unit, WHO Mental Health and Substance Use Department) provided valuable support and feedback along the development of the *Package of interventions for rehabilitation for cerebral palsy*.

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6

Package of interventions for rehabilitation for dementia

6.1 About dementia

Dementia is a chronic and progressive syndrome caused by changes in the brain that lead to deterioration in cognitive function (i.e. the ability to process thought) beyond what may be expected from the usual consequences of biological ageing. Although dementia can occur at any age, it is more common in older people; dementia is not part of normal ageing. While Alzheimer's disease is the most common form, dementia can be caused by a variety of diseases and injuries to the brain (1). Assuming that there will be no change in the age-specific prevalence rates during the next decades, and applying United Nations population forecasts, it is estimated that there will be around 78 million people with dementia worldwide in 2030 and about 139 million in 2050 (2).

The conditions that cause dementia produce changes in a person's mental ability, personality, and behaviour. Dementia results in progressive decline in cognitive functioning and thus people living with the disease commonly experience problems with memory and the skills needed to carry out everyday activities of living, such as washing, dressing, eating, personal hygiene, and toilet activities. People with dementia often present with forgetfulness or difficulties with respect to orientation to time and place as well as in decision-making. Other common symptoms include deterioration in emotional control, social behaviour, or motivation. Due to the progressive nature of the disease, dementia causes significant loss of functioning and leads to disability and dependency among older people worldwide; it has a physical, psychological, social, and economic impact on carers, families, and society at large (1).

People living with dementia may be unaware of these changes and may not seek help. Family members may notice memory problems, changes in personality or behaviour, confusion, wandering, or incontinence. However, some people with dementia and their carers may deny or minimize the severity of memory loss and associated problems (1).

Role of rehabilitation in dementia

It is estimated that in 2019, 52 million people worldwide were living with dementia and associated problems in functioning that could benefit from rehabilitation (3). Although there is no cure, with early recognition, supportive treatment and rehabilitation, the lives of people with dementia and their carers can be significantly improved, and the physical health, cognition, activity, and well-being of the person with the condition can be optimized (1). Rehabilitation plays an essential role in supporting people in achieving and maintaining optimal levels of functioning and independence as long as possible. All people living with dementia can benefit from rehabilitation; the type of interventions to be delivered depends on the individual's

preferences and the level of severity of the condition. Interventions for rehabilitation in dementia target cognitive, psychological, physical and social aspects of functioning which all help, not only to maintain independence and well-being, but also to be engaged in a meaningful life as long as possible.

Target population for the Package of interventions for rehabilitation for dementia

This *Package of interventions of rehabilitation for dementia* is intended to be used for adults with dementia due to Alzheimer's disease (ICD-11: 6D80 Dementia due to Alzheimer disease) and other diseases (ICD-11: 6D81 Dementia due to cerebrovascular disease; 6D82 Dementia due to Lewy body disease; 6D83 Frontotemporal dementia; 6D84 Dementia due to psychoactive substances including medications; 6D85 Dementia due to diseases classified elsewhere) at all levels of severity.

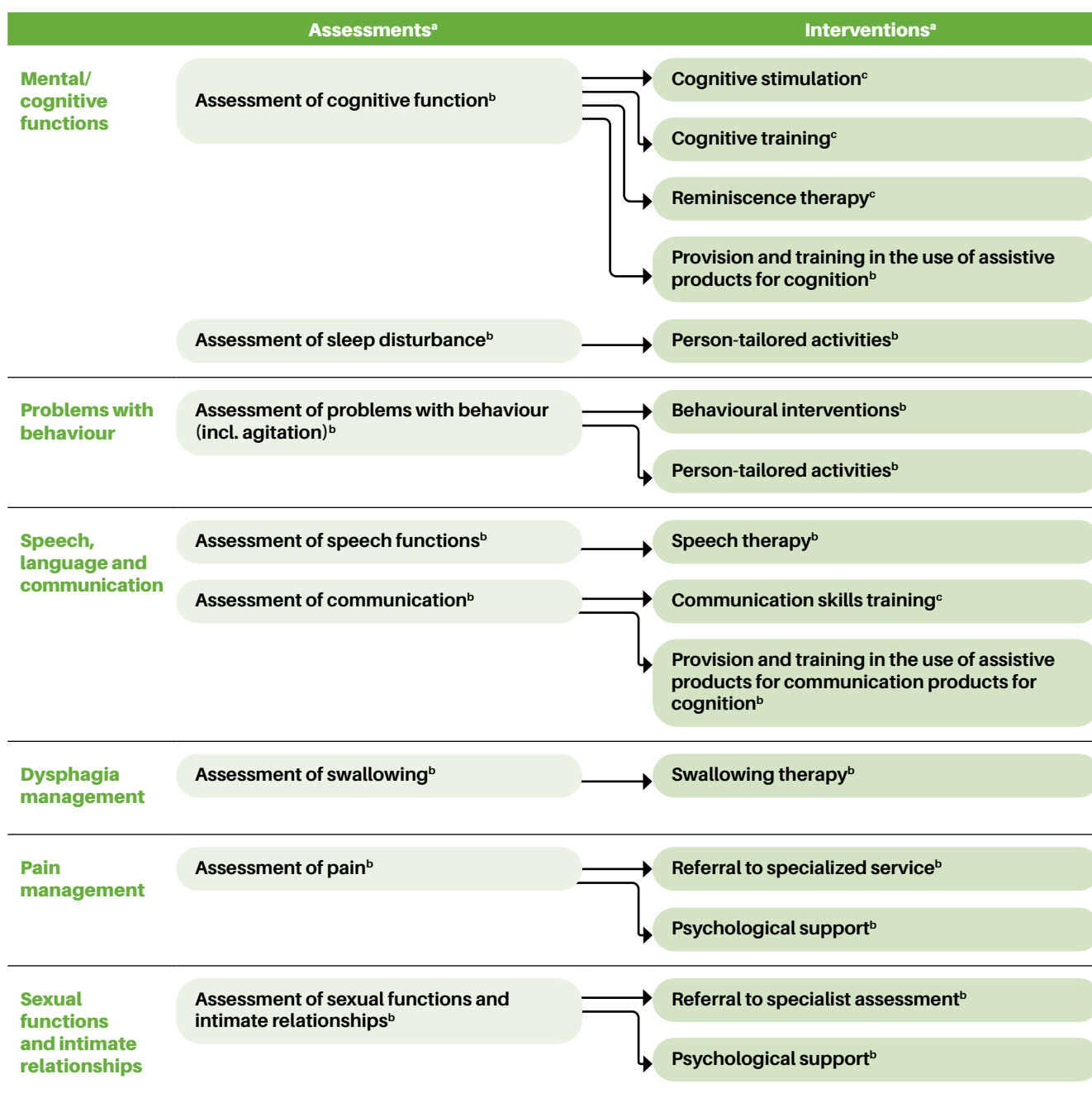
Important links to other WHO products relevant for the care of people with dementia:

- *Global status report on the public health response to dementia* (2).
- *Global action plan on the public health response to dementia 2017–2025* (4).
- *Risk reduction of cognitive decline and dementia* (5).
- *iSupport for Dementia* (6).
- *mhGAP Intervention guide for mental, neurological and substance use disorders – version 2.0* (1).
- *Integrated care for older people: guidelines on community-level interventions to manage declines in intrinsic capacity (ICOPE)* (7).
- *Dementia toolkit for community workers in low-and middle-income countries: guide for community-based management and care of people with dementia* (8).
- *WHO Model List of Essential Medicines* (9).

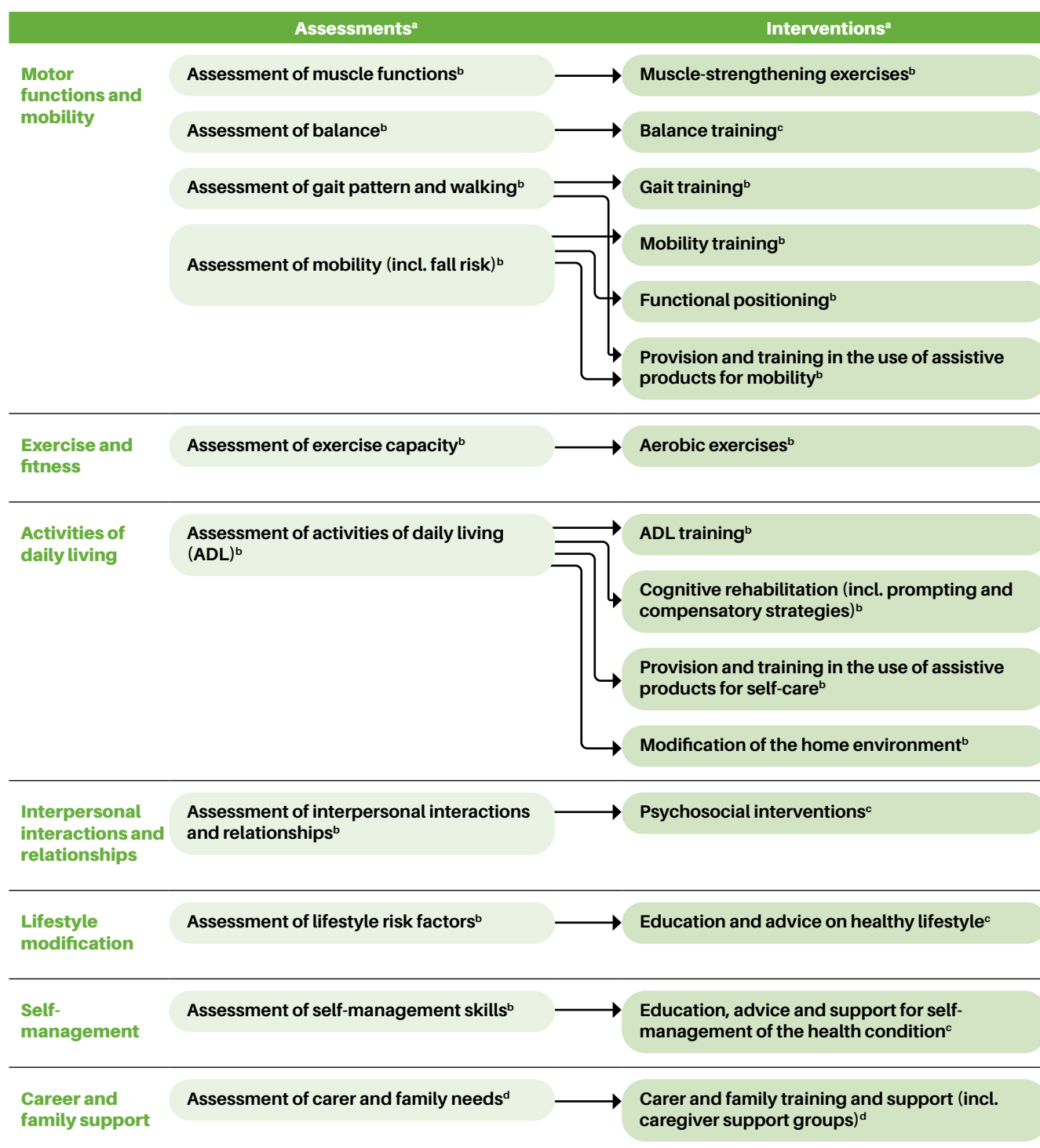
6.2 Content of the Package of interventions for rehabilitation for dementia

Overview of the interventions for rehabilitation in dementia

Functioning interventions



[cont.]



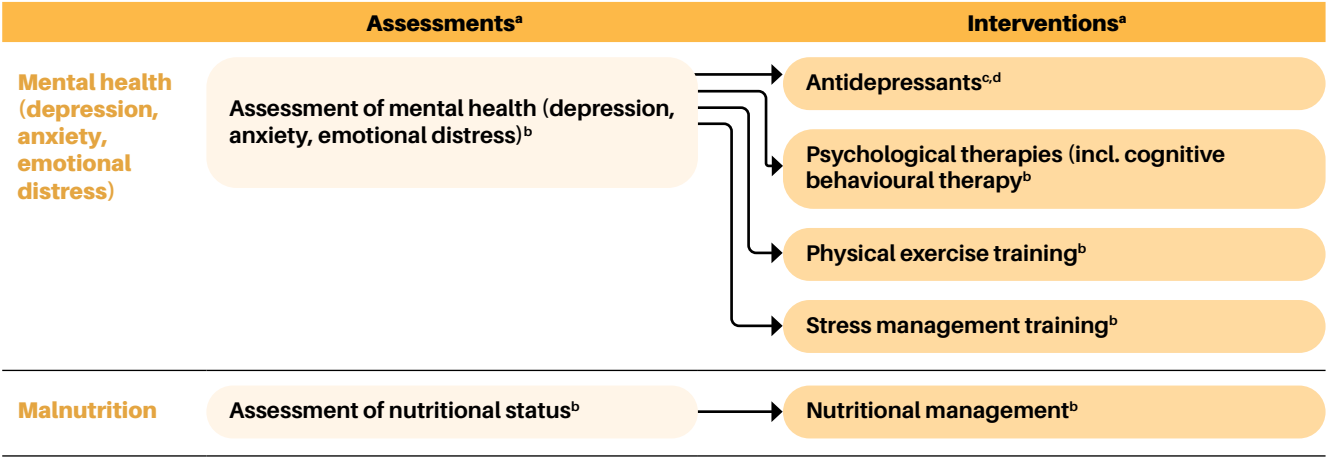
^a See Annex 1 for definitions of assessments and interventions.

^b People with dementia at all levels of severity.

^c People with mild and moderate dementia.

^d Carers and family members of people with dementia at all levels of severity.

Interventions for the prevention and treatment of secondary conditions related to dementia



^a See Annex 1 for definitions of assessments and interventions.

^b People with dementia at all levels of severity.

^c People with dementia and moderate to severe depression.

^d Medicines are included in WHO Model List of Essential Medicines (9).

Overview of the resources required for rehabilitation in dementia

Functioning interventions

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental/cognitive functions	Target: Cognitive functions					
	Assessment of cognitive functions	60	-	<ul style="list-style-type: none">• Computer/tablets with software• Cognitive test equipment• Timer	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist• Specialist medical practitioner/PRM physician
	Cognitive stimulation	30	-	<ul style="list-style-type: none">• Reading materials• Media (incl. television, music player)• Everyday objects	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist
	Cognitive training	30	-	<ul style="list-style-type: none">• Computer/tablets with software• Workbooks• Everyday objects• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Psychologist
	Reminiscence therapy	45	-	<ul style="list-style-type: none">• Reading materials• Media (incl. television, music player)• Everyday objects	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist
	Provision and training in the use of assistive products for cognition	30	<ul style="list-style-type: none">• Global positioning system (GPS) locators• Personal digital assistant (PDA)• Personal emergency alarm systems• Pill organizers• Memory aids• Time management products	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist
	Target: Sleep functions					
	Assessment of sleep disturbances	15	-	-	-	<ul style="list-style-type: none">• Psychologist• Specialist medical practitioner/PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
	Person-tailored activities	60	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Social work and counselling professional
Problems with behaviours	Target: Behaviours					
	Assessment of problems with behaviour (incl. agitation)	60	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Psychologist • Specialist medical practitioner/ PRM physician
	Target: Agitation					
	Behavioural interventions	45	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Psychologist
	Person-tailored activities	60	-	-	-	<ul style="list-style-type: none"> • Nursing professional • Occupational therapist • Social work and counselling professional
Speech, language and communication	Target: Speech functions					
	Assessment of speech functions	45	-	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Recorders (video and audio) • Timer • Mirror • Reading materials and pictures • Everyday objects/toys 	<ul style="list-style-type: none"> • Gloves • Straws • Tongue depressor • Tissues • Face masks 	<ul style="list-style-type: none"> • Specialist medical practitioner/ PRM physician • Speech and language therapist/pathologist
	Speech therapy	45	-	<ul style="list-style-type: none"> • Computer/tablets with (communication) software • Recorders (video and audio) • Timer • Mirror • Metronome • Reading materials and pictures • Everyday objects 	<ul style="list-style-type: none"> • Gloves • Straws • Tongue depressor • Tissues • Face masks 	<ul style="list-style-type: none"> • Speech and language therapist/pathologist

Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
		Assistive products	Equipment	Consumables	
Target: Communication					
Assessment of communication	30	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/ cards• Recorders (video and audio)• Reading materials and pictures• Pointers	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Speech and language therapist/pathologist
Communication skills training	45	-	<ul style="list-style-type: none">• Computer/tablets with (communication) software• Communication boards/books/ cards• Recorders (video and audio)• Simplified mobile phones• Reading materials and pictures, toys• Whiteboard• Pointers	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist
Provision and training in the use of assistive products for communication	45	<ul style="list-style-type: none">• Communication boards/ books/cards• Simplified mobile phones• Communication software• Recorders	-	-	<ul style="list-style-type: none">• Occupational therapist• Speech and language therapist/pathologist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Dysphagia management	Target: Swallowing functions					
	Assessment of swallowing	45	-	• Eating and drinking utensils	• Food dye • Food and liquids with different consistencies	• Nursing professional • Occupational therapist • Specialist medical practitioner/ PRM physician • Speech and language therapist/pathologist
	Swallowing therapy	30	-	• Spit basin • Suction machine • (Adapted) eating and drinking products • Blender • Pillows • Foam rollers/wedges	• Food thickeners • Modified liquids and solids • Straws • Dropper • Oral swabs • Gloves • Apron	• Nursing professional • Occupational therapist • Speech and language therapist/pathologist
Sensation of pain	Target: Sensation of pain					
	Assessment of pain	30	-	-	-	• Nursing professional • Physiotherapist • Specialist medical practitioner/ PRM physician
	Referral to specialized service	5	-	-	-	• Specialist medical practitioner/ PRM physician
	Analgesics	5	-	-	• Analgesics (not specified, depending on the cause for pain)	• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Sexual functions and intimate relationships	Target: Sexual functions and intimate relationships					
	Assessment of sexual functions and intimate relationships	45	-	-	-	<ul style="list-style-type: none">• Psychologist• Specialist medical practitioner/ PRM physician
	Psychological support	45	-	-	-	<ul style="list-style-type: none">• Psychologist
	Target: Sexual functions					
	Referral to specialist assessment	5	-	-	-	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
Motor functions and mobility	Target: Muscle power functions					
	Assessment of muscle functions	20	-	<ul style="list-style-type: none">• Treatment table• Handheld dynamometer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practitioner/ PRM physician
	Muscle-strengthening exercises	20	-	<ul style="list-style-type: none">• Treatment table• Exercise mat• Weights• Resistance bands• Resistive exercise putty	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist
	Target: Involuntary movement reaction functions (balance)					
	Assessment of balance	20	-	<ul style="list-style-type: none">• Timer• Measuring tape	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist• Specialist medical practioner/ PRM physician
	Balance training	20	-	<ul style="list-style-type: none">• Balance board/cushion• Exercise mat• Timer	-	<ul style="list-style-type: none">• Occupational therapist• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Motor functions and mobility	Target: Gait pattern and walking					
	Assessment of gait pattern and walking	30	-	<ul style="list-style-type: none">• Timer• Measuring tape	-	<ul style="list-style-type: none">• Physiotherapist
	Gait training	30	-	<ul style="list-style-type: none">• Canes/sticks/tetrapod• Rollators• Walking frames/walkers• Metronome• Mobile mirror• Training stairs	-	<ul style="list-style-type: none">• Physiotherapist
	Target: Mobility					
	Assessment of mobility	30	-	<ul style="list-style-type: none">• Timer	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Mobility training	30	-	<ul style="list-style-type: none">• Exercise mat	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Functional positioning	10	<ul style="list-style-type: none">• Adapted seating• Adaptive wheelchair seating (front table, hand plate, tray table)	<ul style="list-style-type: none">• Pillows• Foam rollers/wedges	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
Exercise and fitness	Provision and training in the use of assistive products for mobility	30	<ul style="list-style-type: none">• Canes/sticks/tetrapod• Rollators• Walking frames/walkers	<ul style="list-style-type: none">• Measuring tape	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Physiotherapist
	Target: Exercise tolerance functions					
	Assessment of exercise capacity	30	-	<ul style="list-style-type: none">• Timer• Cycle ergometer (arm or leg)• Heart rate monitor	-	<ul style="list-style-type: none">• Physiotherapist• Specialist medical practitioner/ PRM physician
	Aerobic exercises	30	-	<ul style="list-style-type: none">• Timer• Cycle ergometer (arm or leg)• Heart rate monitor	-	<ul style="list-style-type: none">• Physiotherapist

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Activities of daily living	Target: Activities of daily living (ADL)					
	Assessment of ADL	30	-	• Utensils for activities of daily living	-	• Nursing professional • Occupational therapist • Physiotherapist
	ADL training	30	-	• Utensils for activities of daily living • Assistive products for toileting • Adapted eating and drinking products • Assistive products for dressing	-	• Nursing professional • Occupational therapist • Physiotherapist
	Cognitive rehabilitation (incl. prompting strategies, compensatory strategies for memory, time management)	60	-	• Simplified mobile phone • Memory aids • Time management products • White board	-	• Occupational therapist • Psychologist
	Provision and training in the use of assistive products for self-care	30	• Assistive products for toileting • Adapted eating and drinking products • Assistive products for dressing	-	-	• Nursing professional • Occupational therapist • Physiotherapist
	Modification of the home environment	60	• Handrail/grab bars • Ramps, portable	• Measuring tape	• Signage	• Physiotherapist • Occupational therapist
Interpersonal interactions and relationships	Target: Interpersonal interactions and relationships					
	Assessment of interpersonal interactions and relationships	30	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Specialist medical practitioner/ PRM physician
	Psychosocial interventions	60	-	-	-	• Nursing professional • Occupational therapist • Psychologist • Social work and counselling professional

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Lifestyle modification	Target: Healthy lifestyle					
	Assessment of lifestyle risk factors	20	-	<ul style="list-style-type: none">• Measuring tape• Scale weight	-	<ul style="list-style-type: none">• Dietitian and nutritionist• Nursing professional• Occupational therapist• Physiotherapist• Psychologist• Specialist medical practitioner/ PRM physician
	Education, advice and support for healthy lifestyle	45	-	-	<ul style="list-style-type: none">• Information materials (e.g. flyers, brochures)	<ul style="list-style-type: none">• Dietitian and nutritionist• Nursing professional• Occupational therapist• Physiotherapist• Psychologist• Specialist medical practitioner/ PRM physician
Self-management	Target: Self-management					
	Assessment of self-management skills	30	-	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist• Specialist medical practitioner/PRM physician
	Education, advice and support for the self-management of the health condition	45	-	-	<ul style="list-style-type: none">• Information materials (e.g. flyers, brochures)	<ul style="list-style-type: none">• Dietitian and nutritionist• Nursing professional• Occupational therapist• Peer counsellor• Physiotherapist• Psychologist• Specialist medical practitioner/ PRM physician

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Carer and family support	Target: Carer and family support					
	Assessment of carer and family needs	30	-	-	-	<ul style="list-style-type: none">• Nursing professional• Occupational therapist• Psychologist• Social work and counselling professional
	Carer and family training and support (incl. caregiver support groups)	45	-	-	<ul style="list-style-type: none">• Information materials (e.g. flyers, brochures)	<ul style="list-style-type: none">• Occupational therapist• Nursing professional• Psychologist• Social work and counselling professional

ADL: activity of daily living; PRM: physical and rehabilitation medicine.

Interventions for the prevention and treatment of secondary conditions related to dementia

	Intervention	Session time (mins)	Material resources			Occupations (rehabilitation specialists)
			Assistive products	Equipment	Consumables	
Mental health	Target: Mental health (in particular depression, anxiety, emotional distress)					
	Assessment of mental health	60	-	-	-	<ul style="list-style-type: none">• Psychologist• Specialist medical practitioner/ PRM physician
	Antidepressants	5	-	-	• Antidepressants	<ul style="list-style-type: none">• Specialist medical practitioner/ PRM physician
	Psychological therapies (incl. cognitive behavioural therapy)	60	-	-	-	<ul style="list-style-type: none">• Psychologist
	Physical exercise training	30	-	<ul style="list-style-type: none">• Timer• Exercise mats• Resistance bands• Weights• Cycle ergometer (arm or leg)	-	<ul style="list-style-type: none">• Physiotherapist
	Stress management training	30	-	-	-	<ul style="list-style-type: none">• Psychologist
Malnutrition	Target: Malnutrition					
	Assessment of nutritional status	20	-	<ul style="list-style-type: none">• Scale weight (wheelchair accessible)• Measuring tape	-	<ul style="list-style-type: none">• Dietitian and nutritionist• Nursing professional• Specialist medical practitioner/ PRM physician
	Nutritional management (incl. monitoring of hydration)	30	-	-	<ul style="list-style-type: none">• Nutritional supplements• Nutritional diary	<ul style="list-style-type: none">• Dietitian and nutritionist• Nursing professional• Specialist medical practitioner/ PRM physician

PRM: physical and rehabilitation medicine.

Summary of the required material resources and workforce

Material resources

Assistive products (for prescription)	Equipment (for service facilities)	Consumables (for service facilities)
Products for cognition <ul style="list-style-type: none"> • Global positioning system (GPS) locators • Memory aids • Personal digital assistant (PDA) • Personal emergency alarm systems • Pill organizers • Simplified mobile phones • Time management products Products for communication <ul style="list-style-type: none"> • Communication boards/books/cards • Communication software Products for self-care <ul style="list-style-type: none"> • Adapted eating and drinking products • Assistive products for toileting • Assistive products for dressing Products for mobility <ul style="list-style-type: none"> • Adapted seating • Adaptive wheelchair seating • Canes/sticks/tetrapod • Handrail/grab bars • Ramps, portable • Recorders • Rollators • Walking frames/walkers 	Specific for assessment <ul style="list-style-type: none"> • Cognitive test equipment • Hand-held dynamometer • Heart rate monitor • Measuring tape • Scale weight (wheelchair accessible) For interventions <ul style="list-style-type: none"> • Communication boards/books/cards • Computer/tablets with (communication) software • Reading materials and pictures • Recorders (video and audio) • Media (incl. television, music player) • White board • Pointers • Workbooks • (Adapted) eating and drinking products • Assistive products for dressing • Assistive products for toileting • Utensils for activities of daily living • Everyday objects • Memory aids • Time management products • Simplified mobile phones • Spit basin • Suction machine • Blender • Canes/sticks/tetrapod • Rollators • Walking frames/walkers • Foam rollers/wedges • Pillows • Treatment table • Resistance bands • Resistive exercise putty • Weights • Exercise mat • Balance board/cushion • Cycle ergometer (arm or leg) • Metronome • Mobile mirror • Training stairs • Timer 	<ul style="list-style-type: none"> • Antidepressants • Apron • Dropper • Face masks • Food dye • Food thickeners • Food/drink with different consistencies • Gloves • Information materials (e.g. flyers, brochures) • Modified liquids and solids • Nutritional diary • Nutritional supplements • Oral swabs • Signage • Straws • Tissues • Tongue depressor Medicines <ul style="list-style-type: none"> • Analgesics (not specified, depending on the cause for pain)

Workforce

Overview of rehabilitation specialists qualified to deliver interventions for rehabilitation for dementia (in alphabetical order)

- Dietitians and nutritionists
- Nursing professionals
- Occupational therapists
- Physiotherapists
- Psychologists
- Social work and counselling professionals
- Specialist medical practitioners/PRM physicians
- Speech and language therapists/pathologists

PRM: physical and rehabilitation medicine.

6.3 Members of the working groups

The following experts have contributed to the development of the *Package of interventions for rehabilitation for dementia* along the different development steps and using the listed clinical practice guidelines and Cochrane systematic reviews. See Annex 2 for a summary of declarations of interest.

Members of the technical working group

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Members of the peer review group

Hanadi Khamis AL HAMAD (Geriatrician, Qatar); Ricardo ALLEGRI (Neurologist, Argentina); Kasia BAIL (Nurse, Australia); Patricia BELCHIOR (Occupational therapist, Brazil/Canada); Michele CALLISAYA (Physiotherapist, Australia); Vanina DAL BELLO-HAAS (Physiotherapist, Canada); Sue EVANS (Occupational therapist, United Kingdom); Hans HOBBELEN (Physiotherapist/Movement scientist, Netherlands (Kingdom of the)); Den-Ching Angel LEE (Physiotherapist, Australia); Caitlin McARTHUR (Physiotherapist, Canada); Jane MEARS (Consumer representative, Australia); Elizabeth MUTUNGA (Consumer representative, Kenya); Yaser NATOUR (Speech and language pathologist, Jordan); Mayowa OWOLABI (Neurologist, Nigeria); Jackie POOL (Occupational therapist, United Kingdom); Plaiwan SUTTANON (Physiotherapist, Thailand); Morag TAYLOR (Physiotherapist, Australia); Robert WOODS (Psychologist, United Kingdom).

Katrin SEEHER (Technical officer, Brain Health Unit, WHO Mental Health and Substance Use Department) provided valuable support and feedback throughout the development of the *Package of interventions for rehabilitation for dementia*.

6.4 References

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Annex 1. Glossary of assessments and interventions

For each assessment and intervention included in the *Package of interventions for rehabilitation*, short descriptions are provided to help to understand each specific action.

A1.1 Assessments

Assessment	Description of the assessment
Assessment of activities of daily living	Activities of daily living (ADL) are tasks regularly performed as part of self-care activities (e.g. washing, caring for body parts, toileting, dressing, eating and drinking, and looking after one's health), or instrumental activities (e.g. household tasks, acquisition of goods and services, and managing communication, relationships and finances). The assessment of ADL (including initial screening to determine the need for comprehensive assessment) uses interviewing, observation and standardized self-reported questionnaires to determine the presence and/or severity of the limitations in ADL, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of balance	For balance or postural control, sensory (vestibular, somatosensory and visual) information is processed to inform a muscular response that allows maintenance of a body position. The assessment of balance (including initial screening to determine the need for comprehensive assessment) uses observation and standardized balance tests to determine the presence and/or severity of impairments in balance and related risk of falls, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of blood pressure functions	Blood pressure describes the pressure of the blood within the arteries, determined by the contraction of the left ventricle, the resistance of the arterioles and capillaries, the elasticity of the arterial walls, and the viscosity and volume of the blood. The assessment of blood pressure functions uses interviewing for symptoms related to impairments in blood pressure functions (e.g. dizziness) and measurement (e.g. use of analogue or digital blood pressure monitor) to determine the presence and/or severity of impairment, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of cardiovascular system functions	Cardiovascular functions comprise the functions of the heart and blood vessels (e.g. heart rate and rhythm, blood pressure functions). The assessment of cardiovascular system functions uses interviewing for symptoms related to impairments in heart and blood vessel functions, and measurement to determine the presence and/or severity of impairment in the functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of carer and family needs	The role of carer often presents a huge burden that may result in overstrain and health issues. The assessment of carer and family needs uses interviewing and standardized self-reported questionnaires to determine the physical, mental and emotional needs, and the person's knowledge and skills to provide care. It also assesses the need for referral to comprehensive assessment and treatment if required.

Assessment	Description of the assessment
Assessment of cognitive functions	Cognitive functions comprise mental functions such as consciousness, orientation, attention, memory, sensory perception, language, abstraction, organization, planning, insight, judgment, calculation and problem-solving. The assessment of cognitive functions (including initial screening to determine the need for comprehensive assessment) uses observation, interviewing, standardized self-reported questionnaires or standardized cognitive tests to determine the presence and/or severity of impairment in mental functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of communication	Communication is performed by using words, sounds, signs or behaviours to express or exchange information, and is learned from early childhood. Difficulties in communication can relate to problems with understanding and expressing language, impairments in hearing, speech or vocal functions, and also to psychological issues. The assessment of communication (including initial screening to determine the need for comprehensive assessment) uses observation, interviewing, standardized self-reported questionnaires or communication tests to determine the presence and/or severity of impairment in communication functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of defecation functions	Defecation is the physiological process to eliminate wastes and undigested food as faeces. The assessment of defecation (including initial screening to determine the need for comprehensive assessment) uses interviewing, physical examination and diagnostic test such as barium enema, to determine the presence and/or severity of impairment in defecation functions, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.
Assessment of exercise capacity	Exercise capacity is the ability to increase oxygen uptake above that at rest. Exercise tolerance relates to an individual's exercise capacity to endure exercise or to achieve a maximum workload. The assessment of exercise capacity (including initial screening to determine the need for comprehensive assessment) uses self-reported questionnaires and rating scales and standardized maximal exercise tests (e.g. walking, ergometer or treadmill testing) to determine the presence and/or severity of reduced exercise capacity, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of fatigue	Fatigue describes extreme and prolonged feelings of tiredness, triggered by physical or mental activities, which extend beyond normal tiredness. Fatigue often relates to the experience of stress, sleep disturbances, use of medication, or physical or mental disorders. The assessment of fatigue (including initial screening to determine the need for comprehensive assessment) uses interviewing, standardized self-reported questionnaires and rating scales to determine the presence and/or severity of fatigue, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of gait pattern and walking	Walking is the ability to move along different surfaces for short or long distances and at different speeds. Unrestricted and safe walking requires, among other factors, an intact gait pattern, which describes the specific sequences of limb and joint movements during walking. The assessment of gait pattern and walking (including initial screening to determine the need for comprehensive assessment) uses observational gait analysis and the measurement of walking speed and walking distance to determine the presence and/or severity of limitations in gait and walking, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of hand and arm use	Hand and arm use comprises several specific activities, such as lifting, carrying, moving or manipulating objects, which require intact fine and gross motor functions. For the assessment of hand and arm use, activities most relevant to the individual are selected. The assessment of hand and arm use (including initial screening to determine the need for comprehensive assessment) uses interviewing, observation and standardized tests to determine the presence and/or severity of limitations in hand and arm use, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.

Assessment	Description of the assessment
Assessment of heart functions	Heart functions are determined by heart rate, rhythm, contraction force of ventricular muscles, and the blood supply to the heart. The assessment of heart functions (including initial screening and monitoring) uses interviewing on symptoms related to impairments in heart functions (e.g. tightness of chest, dyspnoea, dizziness), physical examination (including inspection, palpation and auscultation) and diagnostic tests (e.g. electrocardiogram, imaging, specialized cardiovascular test) to determine the presence and/or severity of impairments in heart functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of heterotopic ossification	Heterotopic ossification is the presence of bone in soft tissue where bone normally does not exist; it is most often a secondary consequence of musculoskeletal trauma, spinal cord injury or central nervous system injury. The assessment of heterotopic ossification uses imaging procedures to determine the presence and/or severity of the existence of bone in soft tissue, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of interpersonal interactions and relationships	Maintaining basic and complex interpersonal interactions and relationships depends on the level of physical and mental functioning, social skills and specific situation of the individual and the people who relate to the individual. The assessment (including initial screening) can be conducted by observation, interviewing or using standardized self-reported questionnaires.
Assessment of joint integrity	Joint integrity describes the soundness of the anatomical and kinematic properties of a joint. Joint integrity is determined through the intactness of bones and the surrounding soft tissue (capsule, ligaments and muscles). The assessment of joint integrity (including initial screening to determine the need for comprehensive assessment) uses clinical tests or imaging to determine the presence and/or severity of impairments in joint integrity, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of joint mobility	Joint mobility is the range through which a joint can be moved actively or passively. Joint mobility is determined by motor functions, structures of the joint and flexibility of soft tissue. The assessment of joint mobility (including initial screening to determine the need for comprehensive assessment) uses observation and standardized measurements using equipment (e.g. goniometer, inclinometer, tape measures) to determine the presence and/or severity of impairments in joint mobility, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of language	Using language comprises the capacity to understand and express spoken, written or other forms of language. This capacity is developed in the early ages of development. Problems with using language include, amongst others, the lack of development of oral language due to hearing loss, for example, but also different types of impairments due to brain damage (e.g. aphasia). The assessment of language (including initial screening to determine the need for comprehensive assessment) uses observation, interviewing, standardized self-reported questionnaires or standardized tests to determine the presence and/or severity of problems with using language, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of lifestyle risk factors	Lifestyle risk factors relate to health behaviours that are associated with an increased risk of morbidity and mortality (tobacco use, excessive intake of alcohol, physical inactivity and unhealthy nutrition). The assessment of lifestyle risk factors (including initial screening to determine the need for comprehensive assessment) uses interviewing and standardized self-reported questionnaires to determine the health risks related to lifestyle, ascertain their impact on health and functioning, and inform care planning, including the need for referral or follow-up.

Assessment	Description of the assessment
Assessment of mental health	Mental health has intrinsic and instrumental value, helping people to connect (e.g. having positive relationships, sense of belonging), function (e.g. applying cognitive skills, learn new skills), cope (e.g. deal with stress, understanding and managing emotions) and thrive (e.g. feeling good, finding purpose in life). The assessment of mental health (using initial screening to determine the need for comprehensive assessment) uses interviewing and standardized self-reported questionnaires to determine the presence and/or severity of psychosocial health issues, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of mobility	Mobility comprises several activities, such as transferring, or changing body position, and moving around indoors and outdoors either by walking, with the help of an assistive product (e.g. a wheelchair), or by using different means of transportation. Thus, for the assessment (including initial screening) of mobility, the activities most relevant for the individual are selected. The assessment of mobility (including initial screening to determine the need for comprehensive assessment) uses interviewing, observation and standardized tests to determine the presence and/or severity of limitations in mobility and related fall risk, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of movement functions	Movement functions comprise functions such as motor reflex functions, voluntary and involuntary movement functions or gait pattern. The assessment of movement functions (including initial screening to determine the need for comprehensive assessment) uses observation, physical examination and standardized tests to determine the presence and/or severity of impairments in movement functions, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.
Assessment of muscle functions	Muscle functions refer to the force (maximal force = strength, force x velocity = power) generated by the contraction of a muscle or muscle groups. The assessment of the function of specific muscles or muscle groups (including initial screening to determine the need for comprehensive assessment) uses standardized tests either with the use of equipment (e.g. handheld dynamometry, isokinetic devices), or without (e.g. manual muscle testing), to determine the presence and/or severity of muscle weakness, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of muscle tone functions	Muscle tone functions refer to the tension present in resting muscles, and the resistance offered when trying to move the muscles passively. Impairments include hypotonia, hypertonia, spasticity, myotonia and paramyotonia. Assessment of muscle tone functions (including initial screening to determine the need for comprehensive assessment) uses observation, interviewing and physical examination to determine the presence and/or severity of impairments in muscle tone functions, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.
Assessment of nutritional status	Nutritional status describes the state of the body in relation to the consumption and utilization of nutrients, and can be classified as well-nourished or malnourished (under- or over-nourished). The assessment of nutritional status uses anthropometric measures to assess body composition (measurement of weight, height, body mass index, body circumferences and skinfold thickness), laboratory tests to assess biochemical parameters, clinical assessment of comorbid conditions, and interviewing to assess dietary practices. Assessment aims to ascertain the impact of the nutritional status on health and functioning, and inform care planning, including the need for referral or follow-up.
Assessment of oedema	Oedema (e.g. peripheral or lymphoedema) describes an abnormal fluid volume in the circulatory system or in the interstitial space. The assessment of oedema (including initial screening to determine the need for comprehensive assessment) uses a physical examination (including inspection, palpation, circumference measurements) to determine the presence and/or severity of oedema, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.

Assessment	Description of the assessment
Assessment of pain	Pain is an unpleasant sensory or emotional experience associated with, or resembling that associated with, actual or potential tissue damage. Pain can be differentiated into nociceptive or neuropathic pain (including phantom limb pain), and into acute (short-term) or chronic (longer than 3 months) pain. The experience of pain often relates to specific physical activities as well as to psychological factors. The assessment of pain (including initial screening to determine the need for comprehensive assessment) needs to integrate a biopsychosocial perspective, including the assessment of the location, nature and intensity of pain, aggravating and easing factors, pain-related coping, and interference with activities and social determinants. The assessment of pain uses interviewing, standardized self-reported questionnaires, rating scales and physical examination (e.g. pain provoking tests) to determine the presence and/or severity of pain, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of participation in community and social life	Community and social life performance refers to the person's level of participation in various social and community life activities (e.g. sport, recreation and leisure, religion and spirituality, or political life). The assessment of participation in community and social life uses interviewing and standardized self-reported questionnaires to determine the presence and/or severity of restrictions in participation and inform care planning, including the need for referral or follow-up.
Assessment of perceptual functions	Perceptual functions are the specific mental functions of recognizing, processing and interpreting sensory stimuli; they cover auditory, visual, olfactory, gustatory, tactile and visuospatial perception. Impairments in sensory perception and processing can impact vision, hearing or movement, and can also contribute to problems with behaviour. Assessment of perceptual functions uses interviewing, observation or clinical tests to determine the presence and/or severity of impairment in perceptual functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of problems with behaviour	Problems with behaviour (also called "challenging", "problematic", or "inappropriate" behaviours, or "behavioural and psychological symptoms") comprise symptoms such as, for example, agitation, aggression, inattention, or over-activity. Problems with behaviour can be caused or triggered by factors that are biological (e.g. pain), social (e.g. boredom, insensitivity of others), environmental (e.g. noise and lighting) or psychological (e.g. emotional problems), which may endanger the physical safety of the person or others, limit interpersonal interactions, or deny access to community facilities. The assessment of problems with behaviour uses interviewing, observation and standardized instruments to determine the presence and/or severity of the problems and their impact on functioning, as well as to inform care planning, including the need for referral or follow-up.
Assessment of respiratory functions	Respiratory functions comprise inhaling air into the lungs, exchanging gases between air and blood, and exhaling air. Respiration rate, rhythm and depth determine oxygen uptake and output. The assessment of respiratory functions (including initial screening to determine the need for comprehensive assessment) uses physical examination (including observation, measurement of respiration rate and rhythm) and lung function tests (e.g. spirometry) to determine the presence and/or severity of impairments in respiratory functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of self-management skills	Good self-management skills help people to take care of their own health and functioning. They are based on a person's knowledge about their health condition and functioning and on their confidence in applying appropriate measures that they can apply independently. Assessment uses interviewing and standardized self-reported questionnaires to inform the planning of education, advice and support to improve the person's self-management skills.
Assessment of sensory functions	Sensory functions comprise taste, smell, proprioceptive and touch functions, as well as functions related to sensing temperature, vibration, pressure and noxious stimuli. The assessment of sensory functions (including initial screening to determine the need for comprehensive assessment) uses interviewing or standardized clinical or diagnostic tests to determine the presence and/or severity of impairments in sensory functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.

Assessment	Description of the assessment
Assessment of sexual functions and intimate relationships	Sexual functions refer to the mental and physical functions related to the sexual act, including the arousal, preparatory, orgasmic and resolution stages. Intimate relationship functions refer to the person's ability to create and maintain close or romantic relationships with another person, such as husband, wife or sexual partners. The assessment (including initial screening) uses interviewing, physical examination or standardized self-reported questionnaires to determine the presence and/or severity of problems related to sexual functions and intimate relationships, and inform care planning, including the need for referral or follow-up. The romantic partner may be involved in the assessment.
Assessment of sexual reproductive functions	Sexual reproductive functions refer to male and female functions related to reproduction, such as the production of both gametes and sex hormones. The assessment (including initial screening) uses interviewing, physical examination and specimen collection to determine the presence and/or severity of problems related to sexual functions and intimate relationships, and inform care planning, including the need for referral or follow-up.
Assessment of sleep disturbances	Sleep disturbances can relate to the experience of stress, existence of health conditions (e.g. mental health disorders), or presence of independent disorders such as insomnia, sleep apnoea, narcolepsy, restless legs syndrome and rapid eye movement (REM) sleep behaviour disorder. The assessment of sleep functions uses interviewing and brief standardized self-reported questionnaires to identify the potential presence of sleep disturbances, ascertain their impact on functioning, and inform rehabilitation planning, including the referral to specialist services if needed.
Assessment of speech functions	Speech impairments may include problems with speech fluency and rhythm, articulation and coordination of speech due to brain damage (e.g. stuttering, dysarthria or speech apraxia), hearing loss or developmental disorders. The assessment of speech functions (including initial screening to determine the need for comprehensive assessment) uses observation, interviewing, standardized self-reported questionnaires or standardized tests to determine the presence and/or severity of impairments in speech functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of swallowing	Difficulties in swallowing (dysphagia) comprise problems occurring during the passage of solids or liquids from the mouth to the stomach, including sucking, chewing and biting, manipulating food in the mouth, salivation and swallowing. Severe complications in swallowing may include aspiration, dehydration or weight loss. The assessment of swallowing (including initial screening to determine the need for comprehensive assessment) uses observation, interviewing, physical examination and diagnostic test to determine the presence and/or severity of impairment in functions related to swallowing, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.
Assessment of the skin	The integrity of the skin is determined by its intact surface and the capacity to heal if wounds occur. Poor skin integrity increases the risk for pressure ulcers or infections and poor wound healing. The assessment of the skin (including initial screening to determine the need for comprehensive assessment) generally uses physical examination (including observation and palpation) to determine the presence and/or severity of impairments in the structure of the skin. Additionally, it includes the identification of risks for skin damage. Assessments of the skin and risk for skin damage ascertain impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of urination functions	Urination is the process of discharging urine from the urinary bladder. The assessment of urination functions (including initial screening to determine the need for comprehensive assessment) uses interviewing, physical examination and specific diagnostic tests to determine the presence and/or severity of impairment in urination functions, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.

Assessment	Description of the assessment
Assessment of vestibular functions	Vestibular functions are specific sensory functions of the inner ear related to position, balance and movement. The assessment of vestibular functions (including initial screening and monitoring) uses interviewing on symptoms related to impairments in vestibular functions (e.g. nausea, vertigo, intolerance to movement, postural instability) and diagnostic tests to determine the presence and/or severity of impairments in vestibular functions, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.
Assessment of voice functions	Voice functions comprise the production of sounds by the passage of air through the larynx. This requires coordination between the larynx and surrounding muscles with the respiratory system. Impairments in voice functions lead to reduced quality of voice (e.g. aphonia, dysphonia or hoarseness). The assessment of voice functions (including initial screening to determine the need for comprehensive assessment) uses observation, physical examination or diagnostic tests to determine the presence and/or severity of impairments in voice functions, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Assessment of voluntary movement	Voluntary movements comprise functions associated with control over, and coordination of, voluntary movements. The assessment of voluntary movements (including initial screening to determine the need for comprehensive assessment) uses observation, physical examination and standardized tests to determine the presence and/or severity of impairment in the voluntary movements, ascertain their impact on functioning, and inform care planning, including the need for a referral or follow-up.
Educational assessment	Educational assessment aims to describe a person's capacity to participate in educational activities (school readiness, skills and competencies related to learning and applying knowledge) and/or a person's performance at school or university. During the educational assessment, information is collected on the individual's capacity and/or performance to complete expected or assigned tasks, organize themselves, work cooperatively with classmates, and take directions from teachers. The educational assessment (including initial screening to determine the need for comprehensive assessment) uses interviewing, standardized self-reported questionnaires, observation or specific tests to determine the capacity to participate in educational activities and/or the presence and/or severity of difficulties at kindergarten/school/university, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.
Screening for cognitive impairment	Cognitive functions comprise mental functions such as consciousness, orientation, attention, memory, sensory perception, language, abstraction, organization, planning, insight, judgment, calculation and problem-solving. Screening for cognitive impairment uses observation, interviewing, standardized self-reported questionnaires or standardized cognitive tests to determine the presence and/or severity of impairment in mental functions, ascertain their impact on functioning, and inform care planning, including the need for comprehensive assessment or follow-up.
Screening for hearing impairment	Hearing loss (mild, moderate, severe or profound) can affect one ear or both ears, and leads to difficulty in hearing conversational speech or loud sounds. Screening for hearing impairment is commonly undertaken using a quick test with a pass/refer result. A "refer" result requires further detailed audiological assessment to determine the type and severity of hearing loss.
Screening for osteoporosis	The integrity of a bone is determined by its continuity, density and regular form. Osteoporosis is characterized by reduced bone density. Bone density is determined by appropriate loading of the bone, nutrition and diseases. The screening for osteoporosis uses imaging procedures to determine the presence and/or severity of impairments of the bone (e.g. fractures, osteoporosis), ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.

Assessment	Description of the assessment
Screening for sleep disturbances	Sleep disturbances can relate to the experience of stress, existence of health conditions (e.g. mental health disorders), or presence of independent disorders such as insomnia, sleep apnoea, narcolepsy, restless legs syndrome and rapid eye movement (REM) sleep behaviour disorder. Screening for sleep disturbances uses interviewing and brief standardized self-reported questionnaires to identify the potential presence of sleep disturbances, ascertain their impact on functioning, and inform rehabilitation planning, including the referral to specialist assessment if needed.
Screening for vision impairment	A vision impairment occurs when a health condition affects the visual system and one or more of its vision functions (e.g. visual acuity, visual field, colour vision, contrast sensitivity). The screening for vision impairment involves simple testing of visual distance, visual field and/or eye movement to detect impairments, ascertain their impact on functioning, and inform rehabilitation planning, including the referral to specialist services if needed.
Vocational assessment	Vocational assessment aims to describe a person's vocational goals, capacity to work (general work readiness, skills and competencies for specific rehabilitation specialists) and/or a person's occupational performance at the current workplace. During the vocational assessment, information is collected on the individual's capacity and/or performance to complete expected or assigned tasks, organize themselves, work cooperatively with colleagues, take directions from supervisors, or supervise others. The vocational assessment (including initial screening to determine the need for comprehensive assessment) uses interviewing, standardized self-reported questionnaires, observation or specific tests to determine the capacity to work and/or the presence and/or severity of difficulties at work, ascertain their impact on functioning, and inform care planning, including the need for referral or follow-up.

A1.2 Interventions

Intervention	Description of the intervention
ADL training	Activities of daily living (ADL) are tasks regularly performed as part of self-care activities (e.g. washing, caring for body parts, toileting, dressing, eating and drinking, and looking after one's health) or instrumental activities (e.g. household tasks, acquisition of goods and services, and managing communication, relationships and finances). The training is directed towards an individual's goal to improve independence in daily living and consists of education, advice and training techniques in the context of functional tasks. These techniques are practised repetitively under the guidance or assistance of a health worker and, if feasible, self-directed by the patient following education and advice on the appropriate exercises.
Aerobic exercises	Aerobic exercises (also called cardio or cardiorespiratory exercises) use oxygen from the blood to meet the energy needs of the exercise. The exercises (e.g. walking, jogging, cycling or swimming) aim to improve exercise capacity, and therefore need to be performed regularly (e.g. at least 3 x week) with a certain dosage (low to high intensity, for 30 minutes, for example) as tolerated. Aerobic exercises are guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Airway clearance techniques	Airway clearance techniques aim to loosen mucus from airway walls through, for example, applying percussion, vibration, or other techniques, and to improve the clearance of the mucus out of the lungs through, for example, deep or huff coughing, postural or self-drainage, or using specific breathing devices. Airway clearance techniques can be combined with inhaling medications during the exercises. The clearance of the airways can help to prevent inflammation and infection of the respiratory system. The exercises are guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate techniques.
Alpha-1-blockers	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.

Intervention	Description of the intervention
Amantadine	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Analgesics	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Anticholinergic agents	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Anticoagulants	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Antidepressants	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Antihypertensive agents	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Antispastic pattern positioning	Antispastic pattern positioning aims to modulate spasticity and to prevent contractures and limitations in joint mobility by placing the body or body parts in defined positions for as long as possible. The antispastic pattern positioning is applied by a trained health worker, or the patient or caregiver after receiving education and training in the appropriate technique.
Balance training	For balance or postural control, sensory (vestibular, somatosensory and visual) information is processed to inform muscular responses that allow maintenance of a body position. Balance training aims to improve balance, motor control and coordination in order to improve movement-related activities (e.g. sitting, walking) and to reduce risk of falling. Balance exercises utilize different strategies (e.g. dual tasking, cueing) and are performed repetitively, with a specific level of difficulty (e.g. one-leg standing), for a specific period of time (e.g. 60 seconds). Balance training is guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Behavioural interventions	Problems with behaviour ("challenging", "problematic" or "inappropriate" behaviours, or "behavioural and psychological symptoms") comprise, for example, agitation, aggression, inattention or over-activity. Problems with behaviour can be caused or triggered by factors that are biological (e.g. pain), social (e.g. boredom, insensitivity of others), environmental (e.g. noise and lighting) or psychological (e.g. emotional problems); they may endanger the physical safety of the person or others or may limit interpersonal interactions or prevent access to community facilities. Behavioural interventions are tailored to an individual's needs and aim to reduce the intensity, frequency and duration of problematic behaviour or replace the problematic behaviour by behaviours that are appropriate, through providing skills training, using positive or negative reinforcement strategies, or modifying the social or physical environment to reduce external triggers. Behavioural interventions may involve caregivers and family members.
Bimanual therapy	Bimanual therapy uses planned, repeated practice of two-handed activities, tasks or games, to improve a person's ability to use their hands together. Different functional tasks that require using both hands are practised repetitively under the guidance and assistance of a health worker and, if feasible, performed self-directed by the patient following education and advice on the appropriate techniques.

Intervention	Description of the intervention
Biofeedback	Biofeedback is a method that uses different sensor modalities to provide feedback (signals) on different physiological functions (e.g. body temperature, muscle action, skin electrical activity, blood flow). The feedback is used to teach and train the user to act or behave according to the existing problem (e.g. incontinence, pain, motor problems). Biofeedback is applied (together with specific exercises) repetitively and, if feasible, performed self-directed by the patient following education and advice on the appropriate exercises.
Bisphosphonates	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Bowel and bladder management skills training	Problems with bladder and bowel functions (e.g. incontinence, constipation) present a huge burden to affected individuals. Training in bladder and bowel management skills aims to equip individuals with manual skills (e.g. self-catheterization, manual stool evacuation) to control bladder and bowel emptying independently, and also to educate them on behaviours that help to improve bladder and bowel functions (e.g. bladder and bowel management routines, appropriate nutrition and hydration, regular physical activity).
Breathing exercises	Breathing exercises (e.g. active cycle of breathing techniques) aim to enhance the efficiency of the respiratory system by improving gas exchange and ventilation through the improvement of breathing patterns and mobilization of secretions. They are also applied for the prevention of pneumonia in people at risk, or to achieve physical and mental relaxation. The exercises are guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Carer and family training and support	Carer and family training and support entail providing education and advice about the health condition, strategies and tasks relevant for the care and support of the person in the rehabilitation process. Training and support also aim to equip carers and families with the knowledge, skills and resources to cope with their role successfully without developing health issues themselves. Carer and family training and support during the rehabilitation of the person in need comprise provision of information, resources, individual counselling, or support groups also involving peer counsellors.
Chemodenervation	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Cognitive behavioural therapy	Cognitive behavioural therapy (CBT) is a psychological therapy that combines cognitive components (aimed at thinking differently, for example through identifying and challenging unrealistic negative thoughts) and behavioural components (aimed at doing things differently, for example by helping the person to do more rewarding activities). During CBT sessions, exercises help the person to develop appropriate coping skills. CBT includes exercises, education and advice to help the person to develop appropriate coping skills to be applied in challenging situations.
Cognitive rehabilitation	Cognitive rehabilitation is a person-centred approach that aims to achieve optimal functioning and independence in daily life in patients with cognitive impairments, such as problems with memory or executive functions or problem-solving skills. Rehabilitation includes approaches that are restorative (e.g. training cognitive functions while performing activities) and compensatory (e.g. using assistive technologies or self-cueing strategies), to train, for example, the performance of activities of daily living.
Cognitive remediation therapy	Cognitive remediation therapy is behavioural training-based and aims to improve cognitive processes and psychosocial functioning. In individual or group sessions, participants perform series of tasks (e.g. memory exercises, motor dexterity tasks, visual reading exercises), from basic to difficult levels, based on principles of errorless learning and targeted reinforcement. The repetitive tasks promote the capacity in individuals to problem-solve and be aware of their own difficulties.

Intervention	Description of the intervention
Cognitive stimulation	Cognitive stimulation aims to improve cognition and psychosocial functioning in people with difficulties in cognitive functions (e.g. memory, thinking, attention and perception deficits). Cognitive stimulation may include both the enrichment of the environment to stimulate cognition, and therapeutic sessions. During cognitive stimulation therapy sessions, participants are exposed to, and tasked with, exercises that are mentally challenging to improve their ability to think and interact effectively with their environment and with other people.
Cognitive training	Cognitive functions include orientation, attention, memory, abstraction, organization, planning, calculation and problem-solving. Cognitive training includes exercises and tasks designed to restore, retrain or compensate for impaired cognition. It consists of education, advice, and training techniques in the context of functional tasks. Under the guidance or assistance of a health worker, techniques are practised repetitively and, if feasible, performed self-directed by the patient following education and advice on the appropriate exercises.
Communication skills training	Difficulties in communication can relate to problems with understanding and expressing language, impairments in hearing, speech or vocal functions, and also to psychological issues. Training in communication skills aims to enable a person to communicate with others via spoken, written or other forms of language through, for example, communication partner training. Communication skills training includes advice on appropriate communication strategies and is practised in one-to-one or group format.
Constraint-induced movement therapy	Constraint-induced movement therapy (CIMT) aims to increase the use of the affected arm by restraining the less affected arm for most of the waking hours. Restraint is combined with repeated practice of specific tasks of the affected arm. The functional tasks are practised repetitively under the guidance and assistance of a health worker and, if feasible, performed self-directed by the patient following education and advice on the appropriate technique.
Dual task training	Everyday life involves situations in which a person needs to do two or more things simultaneously. Problems with the simultaneous execution of motor and/or cognitive tasks, called dual tasking, can reduce performance in either one or both tasks. Dual task training uses exercises in which people practise two tasks (e.g. one cognitive and one motor) simultaneously. Dual task training is guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Education and advice on self-directed exercises	Education on self-directed exercises entails providing information on exercises relevant for the improvement or maintenance of functioning and the prevention of health conditions. The individual advice aims to identify and discuss those exercises that best address the existing impairments, limitations or risks, and to develop an exercise programme that is appropriate to facilitate adherence, and a regular schedule to be maintained.
Education, advice and support for healthy lifestyle	Education on healthy lifestyle entails providing information on behaviours that aim to promote health and prevent disease, such as regular physical activity, healthy nutrition and avoiding substance use (alcohol, tobacco, drugs). The individual advice aims to identify and discuss strategies that best address the existing needs to achieve and maintain a healthy lifestyle. Support is provided to help the person in the rehabilitation process to change behaviours (e.g. increase health behaviours, stop risk behaviours) to achieve and maintain a healthy lifestyle. The education, advice and support for a healthy lifestyle can be performed in one-to-one or group sessions.

Intervention	Description of the intervention
Education, advice and support for the self-management of the health condition	Education on self-management entails providing information about tasks relevant for the self-management of medical, emotional and social aspects related to the prevention of, or coping with, a health condition. The individual advice aims to identify and discuss strategies which help to enhance the self-management skills that best suit the needs and capabilities of the individual to maintain or achieve independence and optimal participation in daily life. Support is provided whenever a person is not able to self-manage the issues related to the health condition. Support may also be provided by peers through sharing the same experiences or challenges as the person in the rehabilitation process, and supporting the person in the rehabilitation process in the development of self-management skills and coping strategies to achieve and maintain optimal functioning and well-being. The education, advice and support for self-management can be performed in one-to-one or group sessions.
Educational counselling, training, and support	Educational activities are activities that are accomplished in the context of education (kindergarten, school, university). Educational counselling supports an individual during school enrolment or return to school, or to identify new educational goals and opportunities. Educational training is directed to achieve school enrolment, the return to, or maintenance at, school or university through learning (compensatory) strategies to perform the required tasks, taking into consideration functioning limitations or potential health risks. The training consists of education, advice and practising functional tasks, and is guided or assisted by a health or social worker or (special) educator. Educational support (also sometimes referred to as "supported education") provides individual support to an individual at kindergarten, school or university to sustain long-term participation at school or university, usually involving the school, (special) educators or social workers.
Energy conservation techniques	Energy conservation techniques aim to reduce energy consumption during physical exertion in order to prevent dyspnoea and physical exhaustion. Energy conservation techniques comprise the planning and prioritization of day-to-day activities, adjusting the activities according to physical capacity or using equipment when necessary, and applying techniques (e.g. breathing control) during performance of activities. The energy conservation techniques are taught and guided in order to be performed self-directed following education and advice on the appropriate techniques.
Enteral nutrition	Enteral nutrition (or tube feeding) is defined as the delivery of nutrients beyond the oesophagus via feeding tubes placed in the nose, the stomach or the small intestine. Enteral nutrition is applied to ensure sufficient intake of nutrients and, thus, to prevent malnutrition.
Environmental enrichment	Environmental enrichment is an approach for stimulating an individual's cognitive, motor, sensory functions and social interactions by enhancing the physical environment of the individual. Specific approaches include, for example, therapist/parent-infant interaction, or auditory/tactile/visual stimulations. The environmental enrichment is guided by a health worker and, if feasible, provided by family and caregivers following education and advice.
Fast-acting antihypertensive agents	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Fitness training	Fitness training includes aerobic (e.g. walking, cycling) and anaerobic exercises (e.g. muscle-strengthening exercises) with the sufficient amount of intensity, duration and frequency to improve exercise capacity and strength. Exercises to improve flexibility and coordination (e.g. stretching, balance exercises) complete a fitness programme. The fitness training is guided by a health worker and, if feasible, performed self-directed by the patient following education and advice.
Functional positioning	Functional positioning aims to place the body in a position that supports distinct functions and activities (e.g. swallowing, breathing, hand and arm use) or that prevents long-term damage of body structures due to bad posture whenever the person is not able to make and maintain the position independently. Functional positioning is applied by a trained health worker, or the patient, caregiver, or family member after receiving education and training in the appropriate positioning.

Intervention	Description of the intervention
Functional training	Functional training attempts to train muscles in coordinated, multiplanar movement patterns and incorporates multiple joints, dynamic tasks, and consistent alterations in the base of support with the goal of making it easier for patients to perform their everyday activities. The training is practised repetitively under guidance of or assisted by a health worker and, if feasible, self-directed by the person following education and advice.
Gait training	Gait patterns are characterized by the specific sequences of limb and joint movements during a gait cycle. Gait training aims to normalize gait patterns but also to improve safe walking, walking speed and distance. It is based on task repetition, includes different strategies (e.g. cueing, dual tasking, attentional strategies) and is performed on varying surfaces or treadmills. Gait training is guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Graded sitting and standing training	Graded sitting and standing training aims to improve the ability of getting into and out of sitting and standing positions, but also to train the orthostatic system. Training consists of education, advice and techniques required for correct and safe changing of body position. The techniques are practised repetitively under guidance of or assisted by a health worker and, if feasible, self-directed by the person following education and advice.
Intra-articular corticosteroid injections	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Invasive ventilation	Mechanical or invasive ventilation compensates for severe respiratory insufficiency by delivering positive pressure air to the patient's lungs via an endotracheal tube or tracheostomy tube.
Language therapy	Problems with using language comprise difficulties to understand and express spoken, written or other forms of language, which exist in, for example, people with limited language development (e.g. in people with hearing loss), or due to different types of impairments following, for example, brain damage (e.g. aphasia). Language therapy aims to promote and restore understanding and expression of language through structured conversational practice and language stimulation (including early and family interventions) or, if full restoration is not possible, by developing compensatory strategies (e.g. using language cues) to allow a person to understand language and to express themselves. These techniques are practised repetitively and, if feasible, performed self-directed by the patient following education and advice on the appropriate techniques.
Laxatives	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Manual therapy	Manual therapy is an approach that uses "hands-on" techniques (e.g. joint mobilization and manipulation, soft tissue techniques, passive movements, stretching) to improve tissue extensibility, increase joint mobility, optimize muscle function, modulate pain and reduce soft tissue swelling and inflammation.
Massage	Massage comprises a variety of different techniques applied, for example, to release tension and restrictions in muscles, fascia, tendons or ligaments and thereby reduce pain, and also to increase blood and lymphatic fluid flow and, as a result, the transport of metabolic products.
Mirror therapy	Mirror therapy is a therapy for the management of pain and the improvement of movement functions when the impairment affects one limb more than the other. A mirror or mirror box is used to produce visual feedback of movement of the unaffected/less affected limb to give the illusion to the brain of normal and painless movement in the affected limb. This helps to increase cortical and spinal motor excitability. Under the guidance or assistance of a health worker, mirror therapy is practised repetitively and, if feasible, self-directed by the patient following education and advice on the appropriate exercises.

Intervention	Description of the intervention
Mobility training	<p>Mobility comprises several activities, such as transferring, or changing, the body position and moving around indoors and outdoors either walking, with the help of an assistive product (e.g. a wheelchair), or using different means of transportation. Mobility training involves teaching and practising repetitive tasks and goal-directed exercises, along with, when necessary, compensatory strategies and training in the use of assistive products for mobility (e.g. training in wheelchair skills) to achieve the best possible mobility that is independent and safe. Mobility training is usually guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.</p>
Modification of the home environment	<p>The structure, layout, furniture and lighting of a home can facilitate or hinder functioning. Modification of the home environment may involve varying degrees of intervention that address environmental barriers and maximize safety, independence and performance of activities of daily living. These may include:</p> <ul style="list-style-type: none"> · providing general advice and guidance on home modifications (including without seeing the home); · assessment of the home environment (i.e. visiting the home); · documenting/reporting structural and non-structural changes that are recommended, which may include drafting construction plans when relevant; · making environmental changes in the home, such as removing fall hazards, inserting visual cues, or moving items to make them more readily accessible; and/or · referring to appropriate service providers to conduct work beyond the scope of the health worker.
Modification of the school environment	<p>The structure, layout, furniture and lighting of a school environment can facilitate or hinder functioning. Modification of the school environment may involve varying degrees of intervention that address environmental barriers and maximize safety, independence and participation in learning and play. These may include:</p> <ul style="list-style-type: none"> · providing advice and guidance on modifications to the school environment (including without seeing the school or classroom); · assessment of the school environment (i.e. visiting the school); · documenting/reporting structural and non-structural changes that are recommended, which may include drafting construction plans when relevant; and/or · referring to appropriate service providers to conduct work beyond the scope of the health worker.
Modification of the workplace environment	<p>The structure, layout, furniture and lighting of a workplace can facilitate or hinder functioning. Modification of the workplace environment may involve varying degrees of intervention that address environmental barriers and maximize safety, independence and performance of work-related tasks. These may include:</p> <ul style="list-style-type: none"> · providing advice and guidance on workplace modifications (including without seeing the workplace); · assessment of the workplace environment (i.e. visiting the workplace); · documenting/reporting structural and non-structural changes that are recommended, which may include drafting construction plans when relevant; and/or · referring to appropriate service providers to conduct work beyond the scope of the health worker.
Movement strategy training	<p>Impairments in voluntary movements can be caused by deficits in the automatic generation of movements. Movement strategy training is an approach that utilizes visual, auditory, cognitive or proprioceptive cues and attentional strategies to initiate and improve simple or complex voluntary movements. Movement strategy training is guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.</p>
Muscle-strengthening exercises	<p>Muscle-strengthening exercises aim to improve maximal muscle strength, muscle endurance and muscle mass. The exercises are performed regularly (e.g. 3 x week), at a certain dosage (e.g. with up to 80% of maximal power, 3 x 12 repetitions). The exercises (isometric or dynamic) are performed against gravity or resistance (e.g. body weight, weights, resistance bands) and guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.</p>

Intervention	Description of the intervention
Neuromuscular electrical stimulation (including functional electrical stimulation)	Neuromuscular electrical stimulation (NMES) uses electrical impulses to generate a muscle contraction. It can be used for multiple purposes, such as reducing urinary dysfunction, increasing muscle power functions and improving gait pattern. Functional electrical stimulation (FES) uses electrical impulses to generate a functional movement to supplement lost functions in paralysed muscles. FES is used to train lost movement patterns, where active participation of the patient is essential. NMES and FES are applied by a trained health worker and, if feasible, performed self-directed by the patient following education and advice on the appropriate method.
Non-invasive ventilation	Non-mechanical or non-invasive ventilation supports respiration functions by delivering air to the patient's upper airway through a sealed mask placed over the mouth, nose or entire face.
Nonsteroidal anti-inflammatory drugs (NSAIDs)	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Nutritional management	Nutritional (or dietary) management aims to achieve and maintain an appropriate nutritional status and supply of necessary nutrients in people with (or at risk for) malnutrition. Malnutrition refers to undernutrition, overweight or micronutrient-related malnutrition. Nutritional management includes diet modification, provision of adequate nutritional supplements (oral or enteral feeding) or modification of food and fluid consistency to ensure safe food intake. Nutritional management includes education and advice on appropriate diet.
Nutritional supplementation	Nutritional supplementation aims to achieve and maintain an appropriate nutritional status and supply of necessary nutrients in people with (or at risk for) malnutrition. Malnutrition refers to undernutrition, overweight or micronutrient-related malnutrition. The provision of adequate nutritional supplements (e.g. vitamins, minerals) includes education and advice on the appropriate intake of nutritional supplements.
Oral muscle relaxants	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Pain-relieving positioning	Pain-relieving positioning aims to reduce pain by placing the body or body parts in positions that help to relieve specific body structures that may cause pain, for example, to reduce tension or pressure on muscles, tissues or organs. Pain-relieving positioning is performed by a trained health worker or, if feasible, by the patient or caregiver after receiving training in the appropriate technique.
Participation-focused interventions	A variety of activities (e.g. recreational or sports activities) present important opportunities to participate in communities and social life. Participation-focused interventions utilize such activities and integrate approaches that help to improve a person's skills to perform the activities with the overall goal to achieve optimal (re)integration and participation. Under guidance or assistance, different types of activities are offered and tried out (often as structured group activities), if feasible, with the participation of family members or friends.
Peer support	Peer support is an approach in which people, sharing the same experiences or challenges as the person in the rehabilitation process, support the person in the rehabilitation process in the development of self-management skills and coping strategies to achieve and maintain optimal functioning and well-being. Peer support in rehabilitation is organized by the rehabilitation team by bringing together peers, persons receiving rehabilitation and their families. It can be performed in one-to-one or group sessions.
Person-tailored activities	Person-tailored activities present activities that are meaningful and joyful to an individual. Person-tailored activities are used to encourage and help a person to, for example, train for specific tasks, maintain a daily routine, or be engaged in joyful (social) activities with the overall goal to achieve and maintain optimal functioning and well-being. Under guidance or assistance, different types of person-tailored activities are offered and tried out, if feasible, with the participation of family members or friends.

Intervention	Description of the intervention
Phosphodiesterase-5 inhibitors	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Physical exercise training	A variety of physical exercises (e.g. aerobic or strengthening exercises, balance or coordination exercises, mind-body exercises), with or without weight-bearing, are suitable to improve exercise capacity, muscle strength, joint mobility, voluntary movement, balance, gait and walking, as well as helping to reduce pain and fatigue. Regular physical exercise training (including education and advice on exercises) is planned according to an individual's needs, guided or assisted and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Positioning for oedema control	Elevated positioning is one approach to oedema management. The swollen limb should be positioned above the level of the heart. Devices (pillows, rollers) may help to keep the limb in a stable position. Elevated positioning can be combined with other means, such as compression bandages or range of motion exercises. Education and advice are provided to the person to facilitate the self-directed positioning. Positioning is performed by a health worker and, if feasible, performed self-directed following education and advice on the appropriate positioning.
Positioning for pressure relief	Positioning for pressure relief aims to prevent damage of the skin and tissue by placing the body, or parts of the body, in positions where they are not, or only slightly, exposed to pressure. Pressure-relief positioning is applied by a health worker and, if feasible, by the patient or caregiver after receiving training in the appropriate technique.
Positioning for the prevention of contractures	Positioning for the prevention of contractures places parts of the body, or joints, in positions that reduce the risk for contractures that may occur due to lack of active movement. Positioning for the prevention of contractures may utilize orthosis, splint, or castings, or use standing frames for applying prolonged stretching through a standing position. The positioning is applied by a trained health worker and, if feasible, by the patient or caregiver following education and advice on the appropriate techniques.
Proton pump inhibitor	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Provision and training in the use of adapted seating equipment	Provision of adapted seating equipment supports a person to maintain an appropriate sitting position whenever the person is able to both achieve and maintain this position independently. Provision includes the identification of the specific needs, selection, manufacturing or modification, and adjustment of the appropriate device. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of assistive products for cognition	The provision of assistive products (e.g. pill organizers, time management products, global positioning system locators, simplified mobile phones, personal emergency alarm systems) to support people's cognitive functions. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the appropriate product. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of assistive products for communication	The provision of assistive products (e.g. communication boards/books/cards, electronic device and communication software, augmentative and alternative communication devices) to support communication. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the appropriate product. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of assistive products for compression therapy	Assistive products for compression therapy comprise stockings (pieces of clothes that fit tightly around a body part), garments or bandages. Compression therapy supports blood vessel functions (e.g. to maintain blood pressure), and also helps to reduce oedema and scarring. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the compression garment. Following provision, the user will be trained in the garment's use and care.

Intervention	Description of the intervention
Provision and training in the use of assistive products for mobility	The provision of assistive mobility devices (e.g. walking aids, transfer aids, manual or electrical wheelchairs with pressure cushions) supports people to mobilize in different environments. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the appropriate device. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of assistive products for pressure relief	The provision of pressure relief assistive products (mattress and cushions) to prevent, reduce the risk of, and allow the healing of, pressure injuries. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the appropriate product. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of assistive products for self-care	The provision of assistive products for self-care (e.g. products for toileting, washing, grooming, dressing, eating) that support people to improve and maintain their level of functioning and independence in daily living. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the appropriate product. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of assistive products for work and employment	The provision of assistive products (e.g. products to adapt the workstation) that support people to improve and maintain their level of functioning and independence in work and employment. Provision includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the appropriate product. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of incontinence products	The provision of assistive products (e.g. incontinence products, absorbent pads/diapers, catheters, catheter bags) to support people with bladder and bowel management. Provision includes the identification of the specific needs of the individual, as well as the selection of the appropriate product. Following provision, the patient will be trained in the use and care of the products.
Provision and training in the use of orthoses	Orthoses comprise assistive products such as orthotics, braces or splints. Orthoses support the stability of joints or bones by providing external stability to the body region. They may also help to reduce pain caused by movement of a body part and prevent contractures. The provision and training in the use of orthoses includes identification of the specific needs of the individual, as well as the selection, manufacture or modification, and adjustment of the orthoses. Following provision, the person will be trained in the use and care of the orthoses.
Psychological support	Psychological support aims to help people to manage the psychosocial problems that may have arisen with their main health condition and, consequently, to decrease the risk of developing mental health difficulties (e.g. anxiety and depression). In addition, psychological support contributes to the building of resilience which is important in the face of a new crisis or other challenging life circumstances that may develop in relation to a health condition. Psychological support is accomplished through empathy, active listening, problem-solving, education and the development of coping strategies. These are skills that contribute to a culture of psychological care and are provided by all health-care professionals. Psychological support can be provided in formal counselling sessions or in conjunction with other interventions (e.g. nursing, physical or occupational therapy) also involving peer counsellors.
Psychological therapies	Psychological therapy uses different psychological approaches (e.g. psychoanalytical or psychodynamic therapies, behavioural or cognitive therapies, and integrative or holistic approaches) that help the client to eliminate or control symptoms and, thus, to improve psychosocial functioning in people with mental illnesses (e.g. depression, anxiety, stress disorders) or emotional difficulties (e.g. difficulties in coping with daily life). Psychological therapy is conducted in an individual, family, couple or group setting and is applied through conversation between health worker and client(s).

Intervention	Description of the intervention
Psychosocial interventions	Psychosocial interventions aim to achieve and maintain optimal psychosocial functioning using person-centred approaches that address psychological, social, personal, relational and vocational problems. Psychosocial interventions consider both the primary symptoms (e.g. distress) and the related limitations and problems in performing activities or participating in community and social life (e.g. restrictions at the workplace) and thus comprise, for example, cognitive behavioural therapy, mindfulness-based cognitive therapy, peer support or family interventions).
Range of motion exercises	Range of motion exercises are active, assisted, or passive movements applied to a joint or limb, which can reduce muscle stiffness, pain, and swelling. Range of motion exercises also reduce the risk for deep venous thromboembolism through activating the muscle pump, and improve joint mobility by reducing the shortening of capsules and ligaments. The exercises are guided or assisted by a health worker and, if feasible, performed self-directed by the person following education and advice on the appropriate exercises.
Referral for assessment of bone health (DEXA)	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral for specialist assessment	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to botulinum toxin injections	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to deep brain stimulation surgery	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to gastrostomy	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to orthopaedic surgery	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to pressure ulcer surgery	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to selective dorsal rhizotomy	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to specialist for assessment of hearing functions	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Referral to specialized service	Selecting the appropriate service, preparing relevant information and organizing the referral of the person to, and requesting feedback from, the required specialist services.
Relaxation training	Relaxation training targets subjective experiences of pain, stress and anxiety but also body functions such as muscle tension or heart functions (blood pressure, heart rate). Relaxation training comprises a variety of approaches such as progressive muscle relaxation, guided imagery, biofeedback, or deep breathing exercises. The training is guided by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.

Intervention	Description of the intervention
Reminiscence therapy	Reminiscence therapy is a psychosocial intervention that aims to improve cognition and mood, usually in older people with memory loss or dementia. During group meetings or in sessions with the individual, participants are encouraged to talk about past activities, events and experiences with another person or a group of people, using tangible prompts such as photographs, familiar items from the past, or music. Family members and caregivers may be involved in the therapy sessions.
Respiratory muscle-strengthening exercises	Respiratory muscles play an essential role in breathing and are essential for the overall respiratory functions. Training in respiratory muscle-strengthening consists of exercises with or without equipment for inspiratory and/or expiratory muscles. Strengthening can help to reduce dyspnoea on exertion through improving, among other symptoms, breathing patterns and effort, respiratory muscle fatigue, and also the removal of secretions through effective cough. The exercises are guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Retrograde massage	Retrograde massage is a specific massage technique that aims to reduce oedema. The technique stimulates lymphatic flow and reabsorption of the lymphatic fluid into the bloodstream.
Second generation antipsychotics	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.
Sensory stimulation	Sensory stimulation is the use of external environmental stimuli to promote arousal and adequate behavioural responsiveness, so that by gradually providing the nervous system with sensory information, the patient is able to perform adequate action depending on their level of responsiveness. Sensory stimulation programmes use different smells and flavours of moderate-to-high intensity, verbal and non-verbal sounds (e.g. white noise or music), visual stimuli (e.g. objects, photographs) and tactile stimuli (e.g. physical contact, feeling one's body, feeling objects of different textures, moving objects) to promote arousal and adequate behavioural responsiveness. Sensory stimulation is guided by a health worker and, if feasible, also provided by carers following education and advice on the appropriate exercises.
Skin/wound care	Skin/wound care comprises a range of measures to prevent damage of the skin, or to support wound healing, such as the cleaning of wounds and application of wound dressings, with regular monitoring of the progress of the wound healing along with education and advice. Skin/wound care is performed by a health worker and, if feasible, supported by the patient, caregiver, or family member after receiving training in the appropriate methods.
Social skills training	Social skills involve different aspects of cognition, emotion and behaviour. Social skills training aims to improve, for example, problem-solving skills, control of emotions, and verbal and non-verbal communication through exercises, tasks and activities during individual or group activities. The training is guided and assisted by a health worker and, if feasible, applied self-directed by the patient with the support of caregivers or family members following education and advice on the appropriate activities.
Speech therapy	Problems with speech functions include impairments with fluency and rhythm of speech, articulation, and coordination of speech, due to impairments related to brain damage (e.g. stuttering, dysarthria or speech apraxia) or to hearing loss or development disorders. Speech therapy aims to improve the fluency and rhythm of speech, articulation and coordination of speech through, for example, phonological exercises or, if full restoration is not possible, by developing compensatory strategies (e.g. cued speech) to increase speech intelligibility and allow a person to express themselves well through speech. These techniques are practised repetitively and, if feasible, performed self-directed by the patient following education and advice on the appropriate exercises.

Intervention	Description of the intervention
Stress management training	Stress management refers to the ability to cope with the physical, psychological and emotional effects of pressure, emergencies or other stressors. Stress management training uses different approaches (e.g. psychological, relaxation or mindfulness exercises) that aim to develop or improve skills to successfully cope with stressful situations. Stress management training commonly includes education, advice and training in specific exercises and the use of specific techniques.
Stretching	Stretching can help to improve the flexibility of muscles through reducing muscle stiffness or muscle tone. Consequently, it may help to reduce pain related to muscle stiffness and increase the range of motion in joints. Different types of stretching (static, dynamic) are guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Swallowing therapy	Swallowing therapy comprises the instruction and training in different techniques and exercises (e.g. postural techniques, supraglottic swallowing, oral sensory-motor exercises, expiratory muscle-strengthening exercises) to improve food sucking, chewing and biting, manipulating food in the mouth, salivation and swallowing; or the use of, and advice on, compensatory strategies (e.g. functional positioning, modification of food consistency), thereby ensuring appropriate food and liquid intake, and reducing the risk of aspiration. Therapy also covers exercises and peripheral stimulation that focus on improving the strength of muscles relevant to swallowing (oral motor exercises). These techniques are practised repetitively and, if feasible, performed self-directed by the patient following the instruction.
Transcutaneous electrical nerve stimulation (TENS)	Transcutaneous electrical nerve stimulation (TENS) is the therapeutic application of pulsed electrical nerve stimulation through the skin. It is primarily used for pain control in people across a range of acute and chronic pain conditions.
Urinary catheterization	Urinary catheterization (intermittent or indwelling) is the insertion of a urinary catheter into the bladder through the urethra and is applied to compensate for urinary retention or incontinence. Urinary catheterization is applied by a health worker, the patient, caregiver, or family member after receiving training in the appropriate technique.
Vestibular training	Vestibular functions are specific sensory functions of the inner ear related to position, balance and movement. Vestibular therapy includes exercises and techniques to address symptoms of vestibular dysfunction, such as dizziness, visual or gaze disturbances and balance disorders. The exercises and techniques are practised repetitively and, if feasible, performed self-directed by the patient following education and advice on the appropriate exercises.
Vision skills training	Central visual impairments include visual field loss (hemianopia) or eye movement disorders (e.g. strabismus, gaze deficits and nystagmus). Training aims to improve and strengthen visual skills and abilities through aligning the visual axes and improving the ability to focus and track objects. Vision therapy comprises restitutive techniques (e.g. convergence, pursuit, saccade exercises) and compensatory techniques (e.g. training of eye movements for reading, compensatory head posture). These techniques are practised repetitively under the guidance and assistance of a health worker and, if feasible, performed self-directed by the patient following education and advice on the appropriate exercises.
Vocal training	Impairments in voice functions include problems with the production of sounds that lead to reduced quality of voice (e.g. aphonia, dysphonia or hoarseness). Vocal training aims to improve the quality of the voice through respiratory support and vocal exercises or, if full restoration is not possible, to develop compensatory strategies (e.g. a voice hygiene programme or amplification) to allow a person to express themselves through speaking. These techniques are practiced repetitively and, if feasible, performed self-directed by the patient following education and advice on the appropriate exercises.

Intervention	Description of the intervention
Vocational counselling, training and support	Vocational activities are activities that are accomplished in the context of the specific occupation of an individual. Vocational counselling supports an individual during return to work or to identify new vocational goals and opportunities. Vocational training is directed towards achieving a return to, or maintenance at, work through learning (compensatory) strategies to perform the required tasks, taking into consideration functioning limitations or potential health risks. Training consists of education, advice and practising functional tasks, and is guided or assisted by a health or social worker. Vocational support provides individual support to an individual at the workplace to sustain long-term employment, usually involving the employer, supervisors or co-workers.
Weight-bearing exercises	Weight-bearing describes the amount of weight a person puts on a body part. Dosed weight load (partial, complete or with additional weights) stimulates bone growth and the proprioceptive system (including muscular response). Regular and prolonged weight-bearing can also contribute to the prevention of contractures and loss of bone density. Weight-bearing exercises are activities performed by putting weight on a body part and are guided or assisted by a health worker and, if feasible, performed self-directed following education and advice on the appropriate exercises.
Zolpidem, Zopiclone	Prescription and/or administration (if injection) of the medicine and providing education and advice on the safe intake or administration (if self-directed) and potential adverse effects of the medicine.

Annex 2. Summary of declarations of interest and how these were managed

All members of the technical working groups, development groups and peer review groups completed and submitted a WHO Declaration of Interests form and signed confidentiality undertakings prior to starting the work related to the group. The WHO Department of Noncommunicable Diseases reviewed and assessed the submitted declarations of interest and performed an internet search to identify any obvious public controversies or interests that may lead to compromising situations. If additional guidance on management of any declaration or conflicts of interest had been required, the department would have consulted with colleagues in the WHO Office of Compliance, Risk Management and Ethics. If deemed necessary, individuals found to have conflicts of interest, financial or non-financial, would have been excluded from participation on any topics where interests were conflicting. The management of conflicts of interest was reviewed throughout the process. No conflict of interest was identified.

A2.1 Technical working group members

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
For stroke			
Yasaman ETEMADI	Physiotherapist	None declared	N/A
Alexandra RAUCH	Physiotherapist; health scientist	None declared	N/A
Katharina STIBRANT SUNNERHAGEN	PRM physician	Public statement and position	Not significant
For Parkinson disease			
Marianna CAPECCI	PRM physician	None declared	N/A
Elisa ANDRENELLI	Medical doctor	None declared	N/A
Katarzyna MICIELSKA	Physiotherapist	None declared	N/A
Marco FRANCESCHINI	PRM physician	None declared	N/A
Sanaf POURNAJAF	Physiotherapist	None declared	N/A
For traumatic brain injury			
Rudolph Alejandro GARCIA	Engineer	Employment; research funds	Not significant
Sara LAXE	PRM physician	None declared	N/A
Eloy Opisso SALLERAS	Engineer	Employment; research funds	Not significant
Mateau MORALES	PRM physician	None declared	N/A
Marta Pajaro BLAZQUEZ	PRM physician	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
For spinal cord injury			
Mohit ARORA	Physiotherapist	Employment	Not significant
Michael BAUMBERGER	Medical doctor	None declared	N/A
James MIDDLETON	Medical doctor	None declared	N/A
Alexandra RAUCH	Physiotherapist; health scientist	None declared	N/A
For cerebral palsy			
Diane DAMIANO	Physiotherapist	None declared	N/A
Ana Carolina CAMPOS	Physiotherapist	None declared	N/A
Hans FORSSBERG	Medical doctor	None declared	N/A
Egmar LONGO HULL	Physiotherapist	None declared	N/A
For dementia			
Shantel DUFFY	Exercise physiologist	Research funds	N/A
Yun-Hee JEON	Registered nurse	Research funds	N/A
Luisa KREIN	Speech and language pathologist	Employment; research funds; public statement and position	Not significant
Loren MOWSZOWSKI	Neuropsychologist	Employment; consultancy; research funds	Not significant
Claire O'CONNOR	Occupational therapist	Employment; research funds	Not significant

A2.2 Development group members

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
For stroke			
Demelash DEBERE	Social worker	None declared	N/A
Amy EDMUNDS	Consumer representative	None declared	N/A
Gloria EKENG	Nurse	None declared	N/A
Sunday ELEYINDE	Occupational therapist	None declared	N/A
Janice ENG	Physiotherapist	None declared	N/A
Valery FEIGIN	PRM physician	Research funds; non-monetary support; intellectual property	Not significant
Olatoye FUNMINIYI	Occupational therapist	None declared	N/A
Ferdiliza Dandah GARCIA	Medical doctor; speech pathologist	None declared	N/A
Mohammadthaghi JOGHATAEI	Physiotherapist	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Birgitta LANGHAMMER	Physiotherapist	None declared	N/A
Peter LIM	PRM physician	Employment; research funds; non-monetary support	Not significant
Su Fee LIM	Nurse	None declared	N/A
Michelle NELSON	Occupational therapist	Research funds	Not significant
Shamsideen OGUN ABAYOMI	Medical doctor	None declared	N/A
Hariklia PROIOS	Speech and language therapist	Research funds; public positions	Not significant
Woody RULE	Speech and language therapist	None declared	N/A
For Parkinson disease			
Natalie ALLEN	Physiotherapist	Research funds; non-monetary support	Not significant
Marian BRADY	Speech and language therapist	Research funds	Not significant
Jillian CARSON	Physiotherapist	None declared	N/A
Maria Gabriella CERAVOLO	PRM physician	None declared	N/A
Rajinder DHAMIJA	Neurologist	None declared	N/A
Annelien DUITZ	Clinical neuropsychologist	Research funds	Not significant
Gammon EARHART	Physiotherapist; neuroscientist	Research funds; non-monetary support	Not significant
Riyas FADAL	General practitioner	Employment	Not significant
Rob HAGEN	Consumer representative	Consultancy	Not significant
Kamrunnaher KOLY	Occupational therapist	None declared	N/A
Kadri MEDIJAINEN	Physiotherapist	None declared	N/A
Kyohei MIKAMI	Physiotherapist	Employment; consultancy	Not significant
Dominick MSHANGA	Occupational therapist	None declared	N/A
Vu NGUYEN	PRM physician	None declared	N/A
Bethan OWEN-BOOTH	Occupational therapist	None declared	N/A
Mayowa OWOLABI	Neurologist	None declared	N/A
Maria Elisa PIMENTEL PIEMONTE	Medical doctor	None declared	N/A
Simon PRANGNELL	Clinical neuropsychologist	None declared	N/A
Bhanu RAMASWAMY	Physiotherapist	None declared	N/A
Maier SAAD BENJADID	PRM physician	None declared	N/A
Deborah SHAPIRO	Consumer representative	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Shajila SINGH	Speech and language therapist	None declared	N/A
Kayoko TAKAHASHI	Occupational therapist	None declared	N/A
Maaiken Van der PLAETSE	PRM physician	None declared	N/A
Galit YOGEV-SELIGMANN	Physiotherapist	Consultancy	Not significant
For traumatic brain injury			
Johan BAUDEWIJNS	Physiotherapist	None declared	N/A
Vera BONVALOT	Consumer representative	Public office	Not significant
Graham BROWN	Psychologist; consumer representative	None declared	N/A
Fransli BUCKLE	Occupational therapist	None declared	N/A
Gianluca CONTE	Nurse	None declared	N/A
Kashiefa DALVI	Occupational therapist	None declared	N/A
Isabelle GAGNON	Physiotherapist	None declared	N/A
Klemen GRABLJEVEC	PRM physician	None declared	N/A
Abderrazak HAJJIOUI	PRM physician	None declared	N/A
Caroline HARDMAN	Physiotherapist	None declared	N/A
Leanne HASSETT	Physiotherapist	Employment, research funds	Not significant
Tariq KHAN	Neurosurgeon; neurotraumatologist	None declared	N/A
Andre MOCHAN	Neurologist	None declared	N/A
Angela Tamsin MORGAN	Speech and language therapist; audiologist	None declared	N/A
Maureen MUSTO	Nurse	Employment	Not significant
Ashima NEHRA	Neuropsychologist	Intellectual property	Not significant
Caterina PISTARINI	PRM physician	None declared	N/A
Arielle RESNICK	Physiotherapist	Employment; consultancy	Not significant
Melania RON	Occupational therapist	None declared	N/A
Pashé Douglas SAMPSON	Occupational therapist	None declared	N/A
Abhishek Srivastava	PRM physician	None declared	N/A
Truls SVELØKKEN JOHANNSEN	Occupational therapist	None declared	N/A
Leanne TOGHER	Speech pathologist	Research funds, non-monetary support	Not significant
Juan Carlos VELEZ GONZALEZ	PRM physician	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Srikumar VENKATARAMAN	PRM physician	None declared	N/A
Sabahat WASTI	PRM physician	None declared	N/A
Gavin WILLIAMS	Physiotherapist	Consultancy; research funds	Not significant
Barbara WILSON	Neuropsychologist	Consultancy; non-monetary support; public statements and positions	Not significant
For spinal cord injury			
Hani AL-AHMAR	PRM physician	None declared	N/A
Hassan AL RABBAIE	Physiotherapist	None declared	N/A
Kim ANDERSON	Researcher; consumer representative	Research funds	Not significant
Mohit ARORA	Physiotherapist	Employment	Not significant
Mandira BANIYA	Nurse	Research funds	Not significant
Michael BAUMBERGER	Medical doctor	None declared	N/A
Lisa BECK	Nurse	None declared	N/A
Shashi BHUSHAN KUMAR	Consultant psychiatrist	Employment	N/A
Elma BURGER	Occupational therapist	None declared	N/A
Candice CARE-UNGER	Social worker	None declared	N/A
Raju DHAKAL	PRM physician	Employment; consultancy; research funds; public statements and position	Not significant
Stanley DUCHARME	Psychologist	None declared	N/A
Jane DUFF	Clinical psychologist	Employment; consultancy; public position	Not significant
Guillermo GOMEZ	Physiotherapist	Public position	Not significant
Nazirah HASNAN	PRM physician	None declared	N/A
Priya IYER	Dietitian	Public office	Not significant
Charlotte KIEKENS	PRM physician	Consultancy; research funds; public position	Not significant
Wei Qi KOH	Occupational therapist	None declared	N/A
Nan LIU	PRM physician	None declared	N/A
Albert MARTI	Consumer representative	None declared	N/A
James MIDDLETON	Medical doctor	None declared	N/A
Haleluya MOSHI	Physiotherapist	None declared	N/A
Julker NAYAN	Occupational therapist	None declared	N/A
Susanne NIELSEN	Physiotherapist	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Vanessa NOONAN	Physiotherapist	Employment; research funds; supporting projects on SCI rehabilitation	Not significant
Ilias PAPATHANASIOU	Speech and language therapist; physiotherapist	None declared	N/A
Fiona STEPHENSON	Nurse	None declared	N/A
Francois THERON	Orthopaedic surgeon	Consultancy; commercial business interest; public position	Not significant
Nekram UPADHYAY	Assistive technology expert	None declared	N/A
Johanna WANGDELL	Occupational therapist	None declared	N/A
For cerebral palsy			
Skye ADAMS	Speech language pathologist	None declared	N/A
Nancy AGYEI	Occupational therapist	None declared	N/A
Nihad ALMASRI	Physiotherapist	None declared	N/A
Megan AULD	Physiotherapist	None declared	N/A
Sadna BALTON	Speech and language therapist	None declared	N/A
Ros BOYD	Physiotherapist	None declared	N/A
Anne CRONIN	Occupational therapist	None declared	N/A
Diane DAMIANO	Physiotherapist	None declared	N/A
Wouter de GROOTE	PRM physician	None declared	N/A
Pamela ENDERBY	Speech and language therapist	Employment; consultancy; public statements; patent	Not significant
Darcy FEHLINGS	Developmental paediatrician; clinician scientist	Research funds	N/A
Ferdiliza Dandah GARCIA	Speech language pathologist; medical doctor	None declared	N/A
Mohammad Mohinul ISLAM	Physiotherapist	None declared	N/A
Heakyung KIM	PRM physician	Research funds; consultancy; non-monetary support	Not significant
Pavlina PSYCHOULI	Occupational therapist	None declared	N/A
Mehdi RASSAFIANI	Occupational therapist	None declared	N/A
Gilian SALOOJEE	Physiotherapist	None declared	N/A
Abena TANNOR	PRM physician; family medicine	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
For dementia			
Hamed Al SINAWI	Psychiatrist	None declared	N/A
Angela ALLEN	Nurse	None declared	N/A
Hamza BEN TAIEB	Physical therapist	None declared	N/A
Filiz CAN	Physical therapist	None declared	N/A
Linda CLARE	Neuropsychologist	Intellectual property	Not significant
Sebestina DSOUZA	Occupational therapist	None declared	N/A
Lesley GARCIA	Occupational therapist	Employment; consultancy; research funds	Not significant
Susan HUNTER	Physical therapist	None declared	N/A
Yun-Hee JEON	Nurse	None declared	N/A
Eva KOVÁCS	Physical therapist	None declared	N/A
Kate LAVER	Occupational therapist	None declared	N/A
Carlos Augusto De MENDONCA LIMA	Medical doctor	None declared	N/A
Lee-Fay LOW	Psychologist	None declared	N/A
Martin ORELL	Psychiatrist	None declared	N/A
Dua QUTISHAT	Speech and language pathologist	None declared	N/A
Prasad Mysore RENUKA	Psychiatrist	None declared	N/A
Arseny SOKOLOV	Neurologist	Employment; research funds	Not significant
Kate SWAFFER	Consumer representative; retired rehabilitation nurse	None declared	N/A
Vandana V.P	Speech and language pathologist; audiologist	None declared	N/A
Mathew VARGHESE	Psychiatrist	None declared	N/A

A2.3 Peer review group members

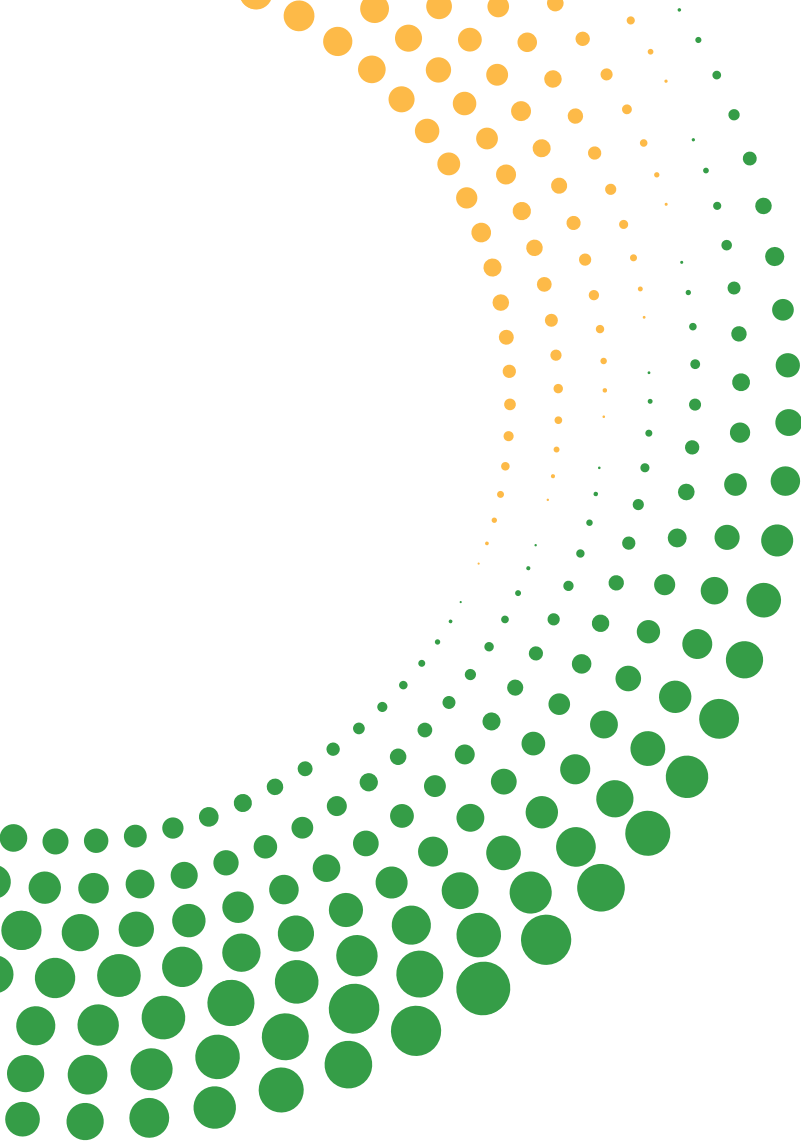
Name	Expertise	Disclosure of interest	Assessment of disclosed interest
For stroke			
Margit ALT MURPHY	Physiotherapist	Commercial business interests	Not significant
Dua ALWAWI	Occupational therapist	None declared	N/A
Noor AZAH AZIZ	Medical doctor	None declared	N/A
Adriana CONFORTO	Neurologist	None declared	N/A
Daniel CRUZ	Occupational therapist	Research funds	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Judith DEUTSCH	Physiotherapist	Employment; intellectual property; public position	Not significant
Sean DUKELOW	PRM physician	Consultancy; research funds; non-monetary support	Not significant
Volodymyr GOLYK	PRM physician	Consultancy; non-monetary support; public position; honoraria for public speaking	Not significant
Lee-Ann JACOBS-NZUZI KHUABI	Occupational therapist	None declared	N/A
Franco MACERA	Physiotherapist	Consultancy	Not significant
Laura MURRAY	Speech and language pathologist	None declared	N/A
Veronica NTSIEA	Physiotherapist	None declared	N/A
Thomas PLATZ	Neurologist	Public position	Not significant
Simon SOLLEREDER	Speech and language pathologist	None declared	N/A
John M SPLOMON	Physiotherapist	None declared	N/A
Anna TSIKIRI	Neuropsychologist	None declared	N/A
Gerard URIMUBENSHI	Physiotherapist	None declared	N/A
Margaret WALSH	Speech and language pathologist	None declared	N/A
Tianma XU	Occupational therapist	None declared	N/A
For Parkinson disease			
Gillian BEATON	Speech and language pathologist	None declared	N/A
Tamine CAPATO	Physiotherapist	None declared	N/A
Clynton CORREA	Physiotherapist	Research funds; non-monetary support	Not significant
Allyson FLYNN	Physiotherapist	Research funds	N/A
Erin FOSTER	Occupational therapist	None declared	N/A
Natasha FOTHERGILL-MISBAH	Public health scientist	Consultancy; research funds; non-monetary support	Not significant
Marialuisa GANDOLFI	PRM physician	None declared	N/A
Peter HEWITT	Clinical psychologist	None declared	N/A
Jeffrey HOLMES	Occupational therapist	Research funds	Not significant
Hanan KHALIL	Physiotherapist	Research funds	Not significant
Shen-Yang LIM	Neurologist	Consultancy; research funds; non-monetary support	Not significant

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Fiona LINDOP	Physiotherapist	Employment; consultancy; research funds; non-monetary support; intellectual property; public statements and position	Not significant
Rosie MORRIES	Physiotherapist	None declared	N/A
Serene PAUL	Physiotherapist	Employment; research funds	Not significant
Ellika SCHALLING	Speech and language pathologist	Research funds; honoraria for lecturing	Not significant
Kate STERREBERG	Physiotherapist	Employment; consultancy	Not significant
Alessandra SWAROWSKY	Physiotherapist	None declared	N/A
Michele TINAZZI	Neurologist	None declared	N/A
For traumatic brain injury			
Jonathan ARMSTRONG	Occupational therapist	None declared	N/A
Nicholas BEHN	Speech and language therapist	Non-monetary support	Not significant
Hilde BEYENS	PRM physician	None declared	N/A
Paolo BOLDRINI	PRM physician	Consultancy; public position	Not significant
Carolina BOTTARI	Occupational therapist	Employment; consultancy; research funds; non-monetary support	Not significant
Lynn GRAYSON	Speech and language therapist	None declared	N/A
Anne LECLAIRE	Nurse	Employment; consultancy	Not significant
Simon MILLS	Physiotherapist	Employment; research funds	Not significant
Deshini NAIDOO	Occupational therapist	None declared	N/A
Kathryn QUICK	Physiotherapist	None declared	N/A
Adam SCHEINBERG	Medical doctor	Research funds; public statements	Not significant
Robyn Tate	Clinical psychologist; neuropsychologist	None declared	N/A
Nusratnaaz SHAIKH	Physiotherapist	None declared	N/A
John WHYTE	PRM physician	Employment; consultancy; research funds; non-monetary support; public statements and position	Not significant
For spinal cord injury			
Fin Biering-Soerensen	Medical doctor	None declared	N/A
Vanesa Bochkezanian	Physiotherapist	None declared	N/A
Philippines Cabahug	PRM physician	None declared	N/A
Janet DEAN	Nurse	Research funds	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Sameera Haffajee	Physiotherapist	Employment	Not significant
Lisa HARVEY	Physiotherapist	Research funds; non-monetary support	Not significant
Annemie Heselmans	Consumer representative	None declared	N/A
Safaa Mahran	PRM physician	None declared	N/A
Jacqueline McRAE	Speech and language pathologist	Research funds; non-monetary support	Not significant
Federico Montero	PRM physician	None declared	N/A
Susan NEWMAN	Nurse	Research funds	Not significant
Colleen O'connell	PRM physician	Research funds	Not significant
Shivjeet Raghaw	Rehabilitation counsellor	None declared	N/A
Christina-Anastasia Rapi	PRM physician	None declared	N/A
Gordon Rattray	Consumer representative	None declared	N/A
Lode SABBE	Occupational therapist	None declared	N/A
Marcia SCHERER	PRM physician	Employment; consultancy; non-monetary support; intellectual property	Not significant
Giorgio Scivoletto	PRM physician	None declared	N/A
Tijn Van Diemen	Psychologist	None declared	N/A
Yang WANG	Occupational therapist	None declared	N/A
Eric WEERTS	Physiotherapist	None declared	N/A
For cerebral palsy			
Mihee AN	Physiotherapist	None declared	N/A
Uthman Olayiwola ANJORIN	Physiotherapist	None declared	N/A
Merce AVELLANET	PRM physician	None declared	N/A
Marie BRIEN	Physiotherapist	None declared	N/A
Annemieke BUIZER	PRM physician	None declared	N/A
Enrico CASTELLI	PRM physician; neurologist	None declared	N/A
Patty COKER-BOLT	Occupational therapist	Consultancy; research funds; non-monetary support	Not significant
Rochelle DY	PRM physician; physiotherapist	None declared	N/A
Ahmed Amine EL OUMRI	PRM physician	None declared	N/A
Marian FRANSEN	Speech and language therapist; nutrition specialist	None declared	N/A
Gulam KHANDAKER	Medical doctor	Research funds	Not significant
Marian MOENS	PRM physician	None declared	N/A

Name	Expertise	Disclosure of interest	Assessment of disclosed interest
Cathy MORGAN	Physiotherapist	Employment; consultancy; research funds; non-monetary support	Not significant
Lesley PRITCHARD-WIART	Physiotherapist	Employment; consultancy; research funds; non-monetary support	Not significant
Cristina SERRA	Medical doctor	None declared	N/A
Kirsty STEWART	Occupational therapist	None declared	N/A
Navamani VENKATACHALAPATHY	Physiotherapist	Employment	Not significant
Susanna WESSELS	Occupational therapist	Expected benefit from working on the WHO project	Not significant
Roelie WOLTING	Physiotherapist	None declared	N/A
For dementia			
Hanadi Khamis Al HAMAD	Geriatrician	None declared	N/A
Ricardo ALLEGRI	Neurologist	None declared	N/A
Kasia BAIL	Nurse	Consultancy; research funds	Not significant
Patricia BELCHIOR	Occupational therapist	None declared	N/A
Michele CALLISAYA	Physiotherapist	None declared	N/A
Vanina Dal BELLO-HAAS	Physiotherapist	Research funds; public office	Not significant
Sue EVANS	Occupational therapist	Consultancy; research funds	Not significant
Hans HOBBELEN	Physiotherapist; movement scientist	Research funds; non-monetary support	Not significant
Angel Lee, DEN-CHING	Physiotherapist	Research funds	N/A
Caitlin McARTHUR	Physiotherapist	Research funds	N/A
Jane MEARS	Consumer representative	None declared	N/A
Elizabeth MUTUNGA	Consumer representative	None declared	N/A
Yaser NaATOUR	Speech language pathologist	None declared	N/A
Mayowa OWOLOABI	Neurologist	None declared	N/A
Jackie POOL	Occupational therapist	Intellectual property: copyright of book	Not significant
Plaiwan SUTTANON	Physiotherapist	None declared	N/A
Morag TAYLOR	Physiotherapist	Non-monetary support	Not significant
Robert WOODS	Psychologist	Research funds	Not significant



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