

Measuring *outcome* in Trauma Rehabilitation

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Expected
outcomes





Quality = consistency

=



Trauma: Who cares?



A report of the National Confidential Enquiry into Patient Outcome and Death (2007)

NCEPOD

- How well we do
- Where we sometimes fail
- Where things go wrong that we can learn most
- 60% of the patients received a standard of care that was less than good practice
- Deficiencies in both organisational and clinical aspects of care occurred frequently

Trauma: Who cares?



A report of the National Confidential Enquiry into Patient Outcome and Death (NCEPOD)

NCEPOD

NCEPOD

- The completeness of recovery are highly dependent on the care that follows....
- The speed with which lethal processes are identified and halted makes the difference between life and death
- The sooner we can halt and reverse these processes, the *more likely* and complete will be return to health

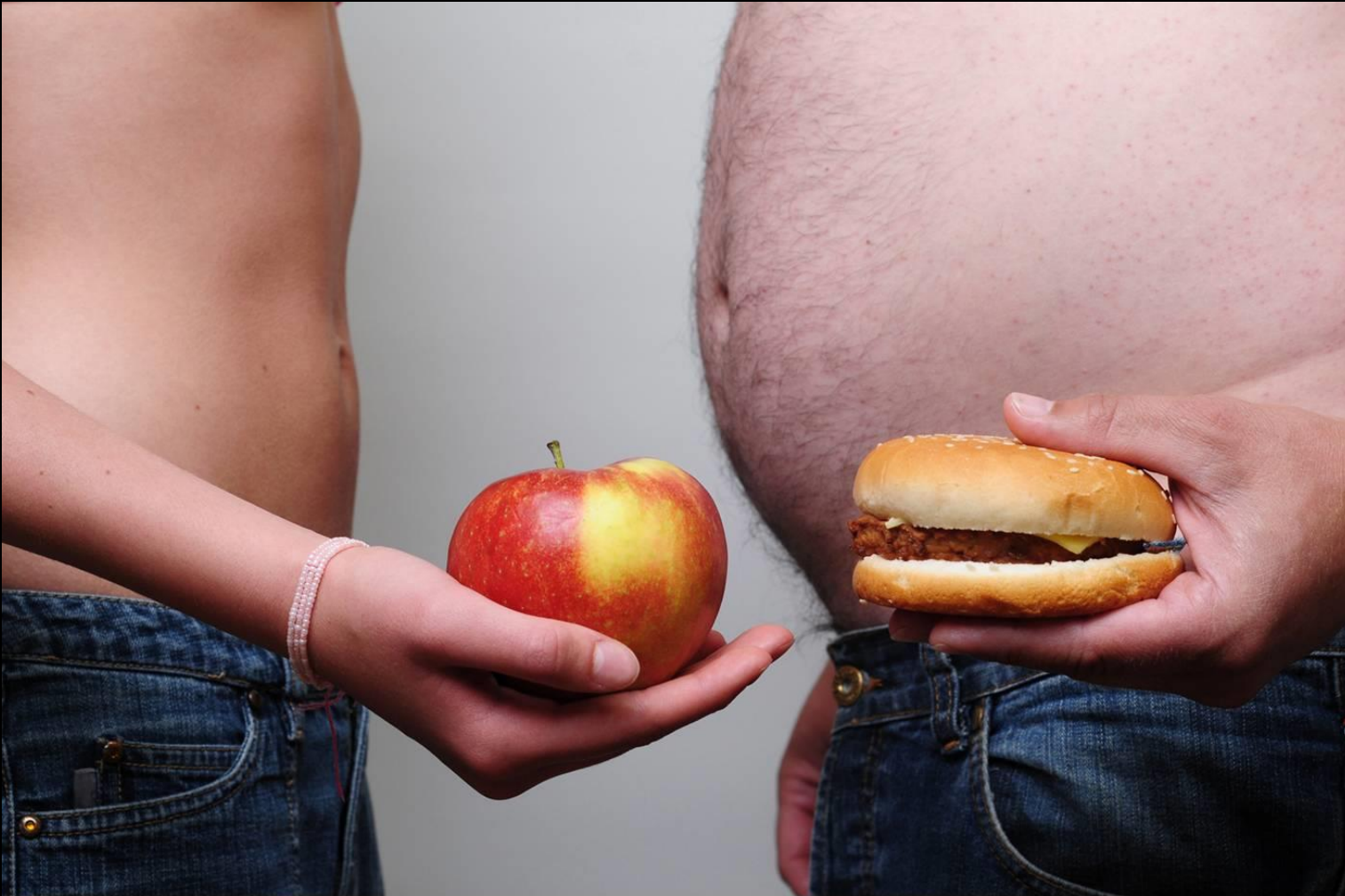
Where are we at?

☑ Rehabilitation prescription

- The care (what do we do? What is standard care/rehabilitation?)
- Speed (how fast, how often and how frequently?)
- Makes the difference (What intervention makes a difference?)
- Effects of injury (Consequences and rehabilitation priorities)
- Halt and reverse (EBP)
- Return to health

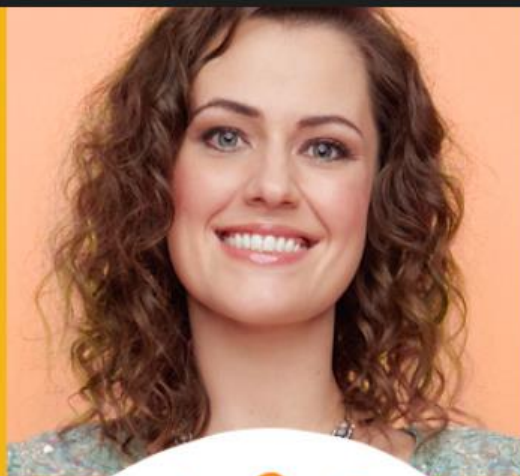


1. Do you have one?
2. How often do you use it?
3. How much pleasure does it provide?
4. What type of feedback does it give you?





YOU COULD BE A
dress size
smaller
in **8 WEEKS'** time



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Heart rate
Phone app



Time
Friends/ Weight watchers
Bathing suit

Waist measure
Facebook
Check book

Using the ICF as a framework

IMPAIRMENT	ACTIVITY (LIMITATION)	PARTICIPATION (RESTRICTION)
ISS TRISS APACHE II ASIA Fatigue Impact Scale HADS BDI McGill Pain questionnaire Grip strength CAM Davidson Trauma Scale	Barthel Index FIM SF-36 EQ-5D AusTOMs GOSE GAS Nottingham Health Profile (NHP) TOP – Trauma Outcomes Profile	Life satisfaction Index COPM London Handicap Scale Life Habits Assessment (LIFE-H) Craig Handicap Assessment Reporting Technique (CHART) AusTOMs WHO-DAS II Personal Care Participation Assessment & Resource Tool (PC-PART)

Health Outcome after Major Trauma: What Are We Measuring?

Karen Hoffman^{1*}, Elaine Cole¹, E. Diane Playford², Eva Grill³, Helene L. Soberg⁴, Karim Brohi^{1*}

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Table 2. Overview of the thirty eight outcome measures identified in 34 studies.

Description of instruments	n	% of 34 studies
Medical Outcome Study Short Form Health Survey (SF-36)	14	41
European Quality of Life Questionnaire (EQ-5D)	7	21
Functional Independence Measure (FIM)	5	15
Glasgow Outcome Scale (GOS)	5	15
World Health Organisation Disability Assessment Schedule II (WHODAS II)	4	12
Hannover Score for Polytrauma Outcome (HASPOC)	3	9
Musculoskeletal Function Assessment (MFA)	3	9
Study Short Form 12 (SF-12)	3	9
Sickness Impact Profile (SIP)	3	9
Glasgow Outcome Scale-Extended (GOS-E)	2	6

What *rehabilitation* are we doing?

Is it cost effective?

Is it evidence based?

Is it quality?

Can we collect it?

Does it make a difference?

Review

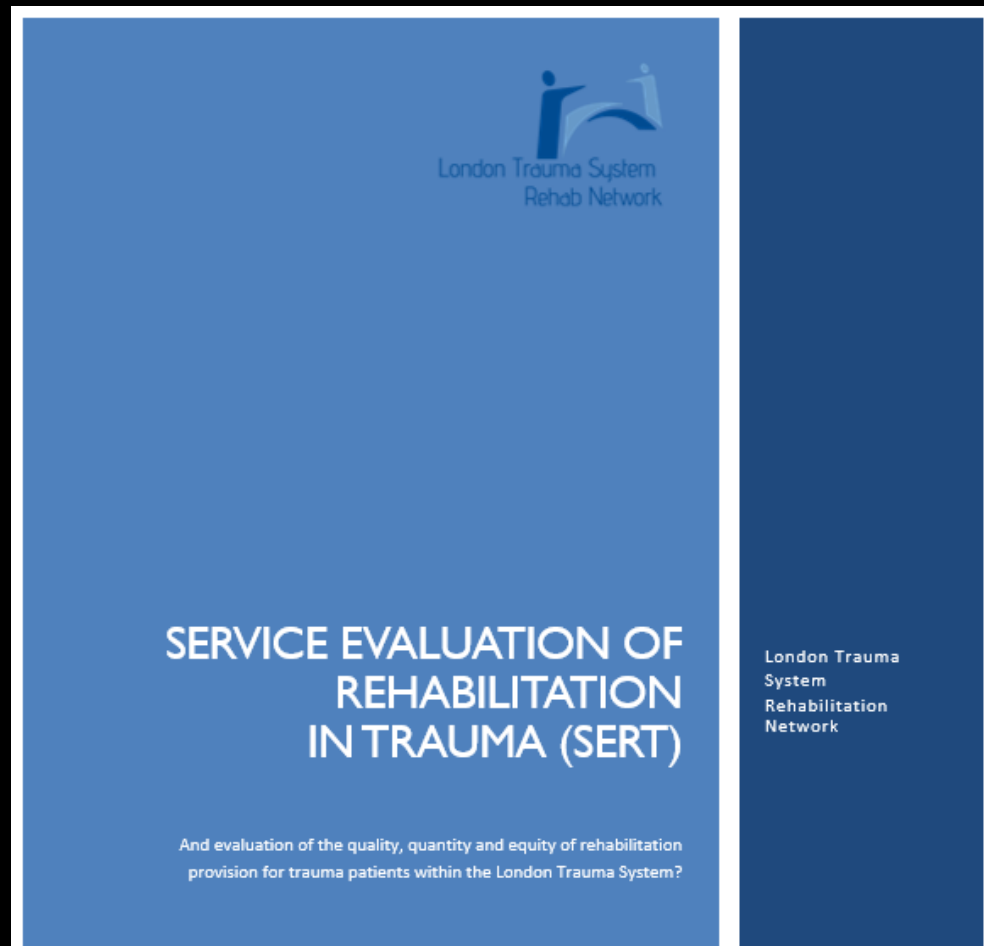
Systematic review of multidisciplinary rehabilitation in patients with multiple trauma

F. Khan^{1,2}, B. Amatya² and K. Hoffman³

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SERT: Service Evaluation of Rehabilitation in Trauma



- **AIM 1: INCLUSIVENESS** - *does the system provide equitable rehabilitation for patients treated at major trauma centres and trauma units in terms of frequency seen and variety of therapists involved in rehabilitation?*
- **AIM 2: KEY REHABILITATION COMPONENTS** - *which key rehabilitation components are offered to trauma patients and is there any association with outcome in terms of hospital LOS?*
- **AIM 3: EFFICACY** – *to identify the efficacy of rehabilitation prescriptions in terms of transfer of care between MTC and TU and TU and onward rehabilitation (reduction in repetition of information between HCPs).*
- **AIM 4: EQUALITY AND ACCESS** – *to evaluate what proportion of patients access the optimum rehabilitation service they require and identify factors that preclude access to rehabilitation (both in hospital and onward referral)*
- **AIM 5: COMPARISON/BENCHMARK/STANDARDS** – *to evaluate to what extent there may be a difference in terminology used between units and to what extent the ICF Trauma Core Set can capture rehabilitation issues relevant to trauma patients.*

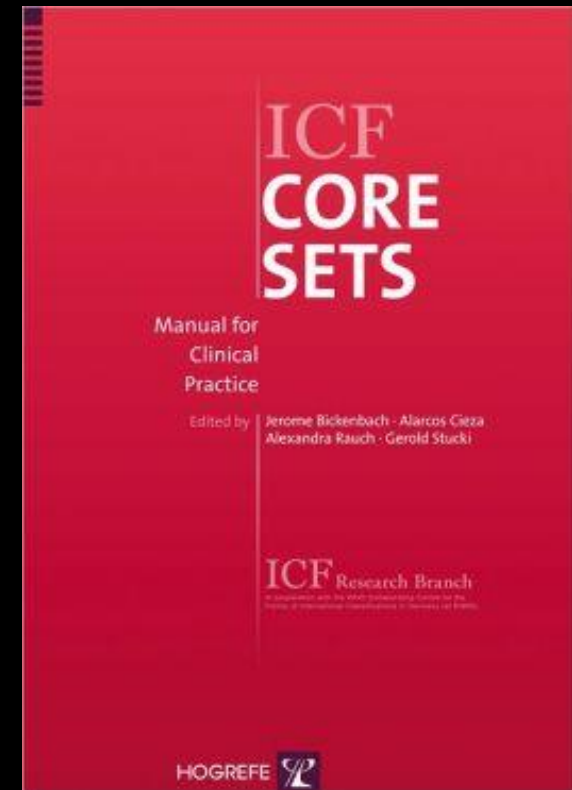
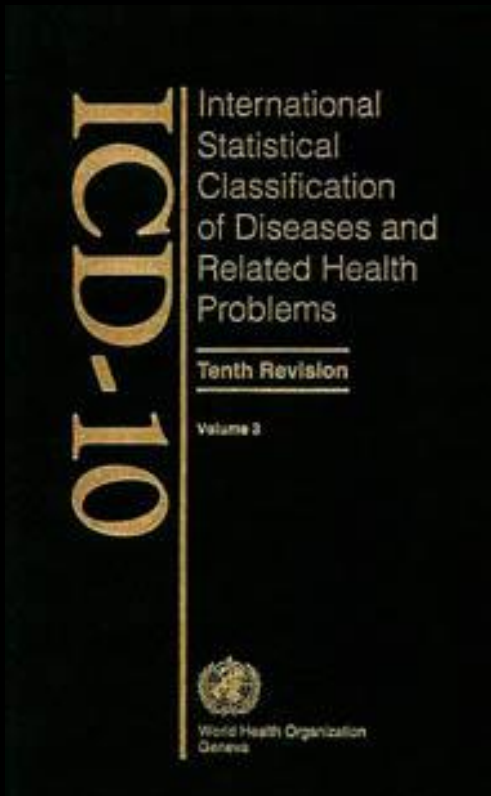
How do we measure and compare problems and outcomes?

Data

Quality, consistency

Patient Priorities

World Health Organisation



ICF Core Set for Multi Trauma

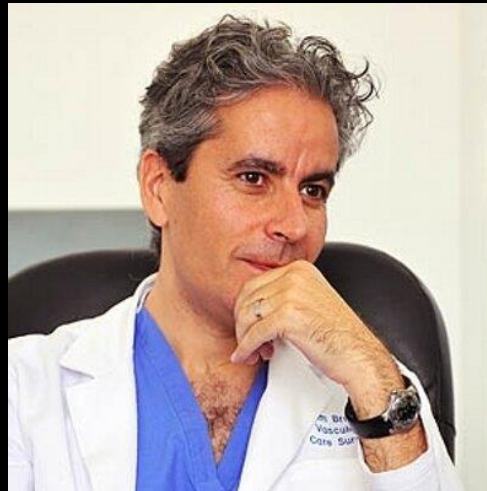
Methods

1. Systematic review
2. International on-line expert survey (>5years trauma experience)
3. Semi structured interviews using the ICF framework (n=32 patients)
4. Descriptive data analysis
5. Consensus conference



REHABILITATION ASSESSMENT AND PRESCRIPTION							
Date of assessment/ date of goal set/ review date:	Care or risk	Nursing	Medical	Therapy Discipline	Therapy Intensity	Equipment	
REHABILITATION NEEDS:							
REHABILITATION PROVISION:							
	ICF Qualifier						
	0	1	2	3	4		
Overall goal: To return home being able to walk with assistance of one and prepare all my meals independently							
Goal 1:							
Goal 2:							
ICF CATEGORIES - USE FOR ASSESSMENT AND INTERVENTION	ICF Qualifier						GOAL nr:
Body Functions	Problem: Y/N	0	1	2	3	4	
b114 Orientation functions (<i>post traumatic amnesia</i>)	N						
b130 Energy and drive functions (<i>fatigue, disinterest</i>)	Y						
b134 Sleep functions (<i>too much/too little/alterd pattern</i>)	Y						
b144 Memory functions (<i>short or long term memory</i>)	Y						
b152 Emotional functions (<i>anxiety, happy, sad, appropriateness, range, regulation</i>)	Y						
b280 Sensation of pain	Y						
b820 Repair function of the skin (<i>wound healing and scars</i>)	N						
Activity and Participation							

Consensus conference



ICF Research Branch

ICF Research Branch, a cooperation partner within the WHO Collaborating Centre for the Family of International Classifications in C

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- Other Health Conditions

Search

Comprehensive ICF Core Set for Traumatic Brain Injury

ICF Code ICF Category

Body Functions (37)

b110	Consciousness f
b114	Orientation funct
b126	Temperament and
b130	Energy and drive
b134	Sleep functions
b140	Attention function
b144	Memory function
b147	Psychomotor fun
b152	Emotional functi
b156	Perceptual functi
b160	Thought function
b164	Higher-level cogn

Brief ICF Core Set for Traumatic Brain

ICF Code ICF Category Title

Body Functions

b164	Higher-level cognitive functions
b152	Emotional functions
b130	Energy and drive functions
b760	Control of voluntary movement functions
b144	Memory functions
b280	Sensation of pain
b140	Attention functions
b110	Consciousness functions

Body Structures

s110	Structure of brain
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Activities & Participation

d230	Carrying out daily routine
d350	Conversation
d450	Walking
d720	Complex interpersonal interactions

ICF Based Documentation Form

Reminder: The categories of the Generic Set are indicated by the letter (G).

PATIENT INFORMATION								
BODY FUNCTIONS		No impairment	Mild impairment	Moderate impairment	Severe impairment	Complete impairment	Not specified	Not applicable
Physiological functions of body systems (including psychological functions)								
<i>How much impairment does the person have in ...</i>								
		0	1	2	3	4	8	9
b130	Energy and drive functions (G)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>General mental functions of physiological and psychological mechanisms that cause the individual to move towards satisfying specific needs and general goals in a persistent manner.</p> <p>Inclusions: functions of energy level, motivation, appetite, craving (including craving for substances that can be abused) and impulse control</p> <p>Exclusions: consciousness functions (b110); temperament and personality functions (b126); sleep functions (b134); psychomotor functions (b147); emotional functions (b152)</p> <p>Sources of information:</p> <p><input type="checkbox"/> Case history <input type="checkbox"/> Patient reported questionnaire <input type="checkbox"/> Clinical examination <input type="checkbox"/> Technical investigation</p> <p>Description of the problem:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>								
		0	1	2	3	4	8	9
b152	Emotional functions (G)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Specific mental functions related to the feeling and affective components of the processes of the mind.</p> <p>Inclusions: functions of appropriateness of emotion, regulation and range of emotion; affect; sadness,</p>								

Figure 4: Intervention Table

Phys: Physician, PT: Physiotherapist, Spo: Sport therapist, Psych: Psychologist, SW: Social worker, Arch: Architect (Spinal Cord Injury, ASIA A Th 3, 12 weeks after trauma).

		Intervention target	Intervention	hys	Nurse	PT/ Spo	OT	Psych	SW	Arch	First value	Goal value	End value
Body functions/structures	b28013 Pain in the back		Body posture training	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
			Adaptation of wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
			Control of sitting position	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3	0	1
			Medication	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
		b415 Blood vessel functions at risk	Compression hosery, drugs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0
		b420 Blood pressure function	Compression hosery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	0	0
		b7101 Mobility of several joints	Passive movement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	0	1
		b755 Involuntary movement funtions	Body balance training	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	0	0
		b7800 Sensation of muscle stiffness	Detonisation, Stretching	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	0	0
		b810 Structure of the skin - at risk	Daily inspection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0
Activities and Participation		d410 Changing basic body positions	Sit up-training	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	0	0
		d4153 Maintaining a sitting position	Body balance training	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	0	0
		d4200 Transferring oneself while sitting	Transfer training	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	1	1
		d465 Moving around with wheelchair	Wheelchair training outdoor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3	1	1
		d510 Washing oneself	Assistance/Instruction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	0	0
		d520 Caring for body parts	Assistance/Instruction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	0	1
		d5300 Regulating urination	Assistance/Instruction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	0	0
		d5301 Regulating defecation	Assistance/Instruction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	0	0
		d540 Dressing	Assistance/Instruction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	0	0
		d9201 Sport	Exercising different sports	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4	2	2
=		e1151 Assistive products: Chair cushion	Control of chair cushion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-2	0	0
		e1201 Assistive products for personal mobility: Wheelchair and adapted car	Testing of different wheel-chairs, reconstruction of car	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-3	-2	-2
		e155 Design, construction and building products and technology of buildings for private use: farm house	Planning and reconstruction of private building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-3	-2	-2
		e5700 Social security	Clarification, Organization of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	4+	2+



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INTERNATIONAL CLASSIFICATION OF FUNCTIONING DISABILITY AND HEALTH

Scales could be developed based on simple clinical ratings of International Classification of Functioning, Disability and Health Core Set categories

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Summary

1. THRIVE
2. Quality
3. Data
4. Innovation

