

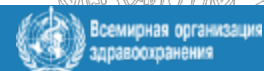
Why WHO's Focus on the International Classification of Functioning, Disability and Health

Alarcos Cieza, MSc, MPH, PhD

World Health Organization, Head Quarters , Geneva



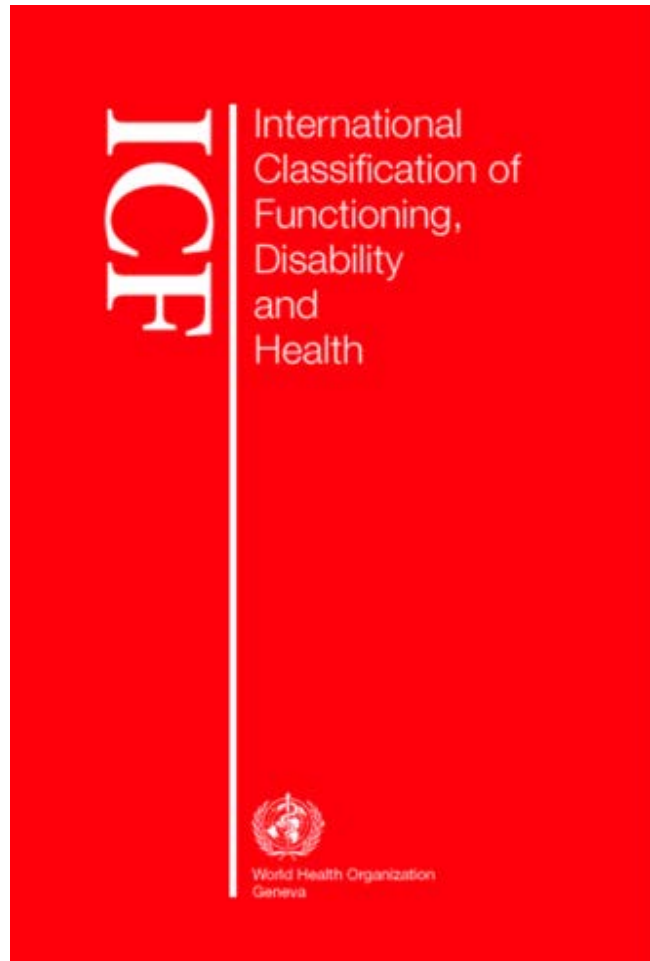
World Health



2001



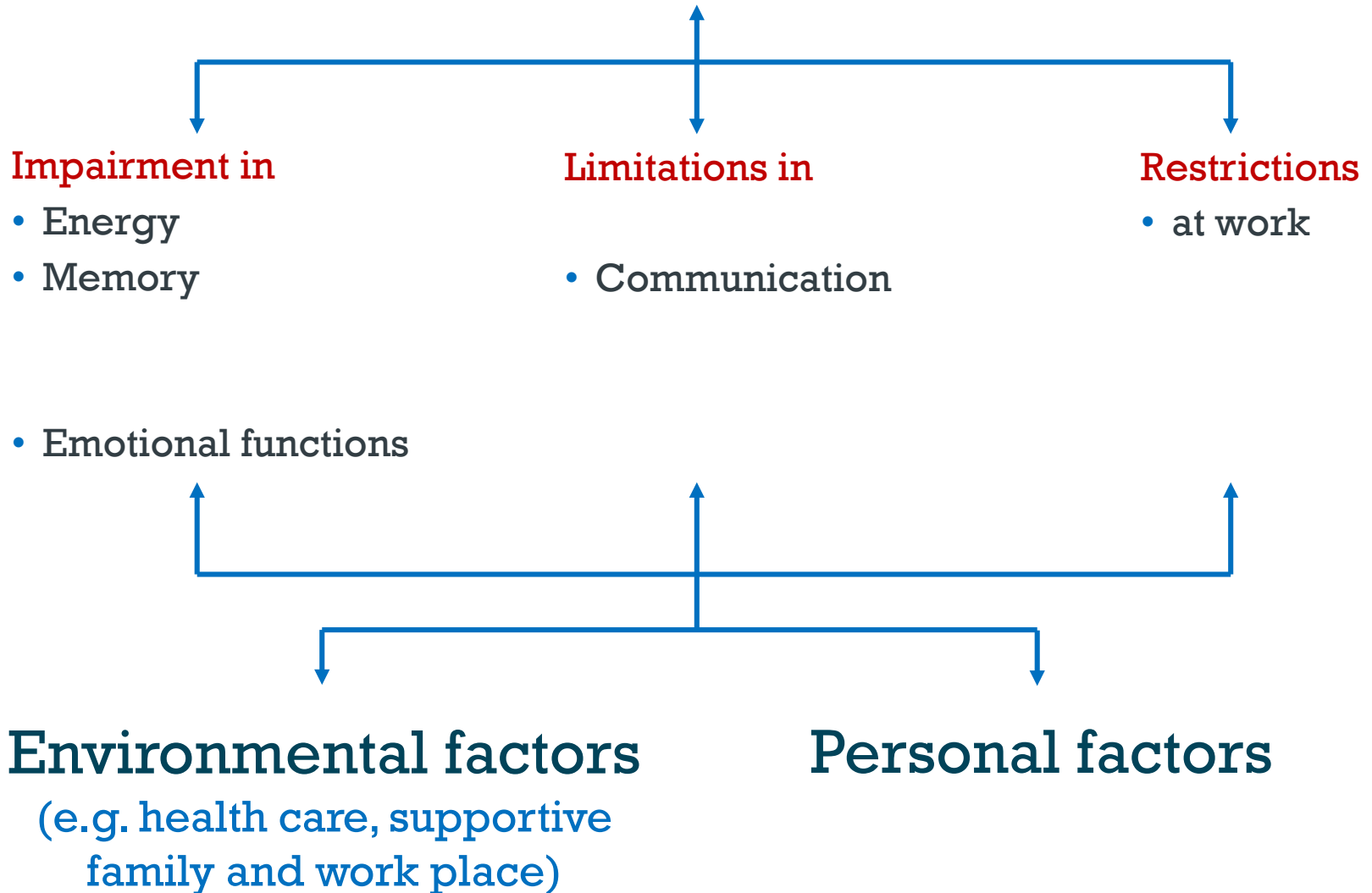
WORLD HEALTH ASSEMBLY WHA54.21 (2001)

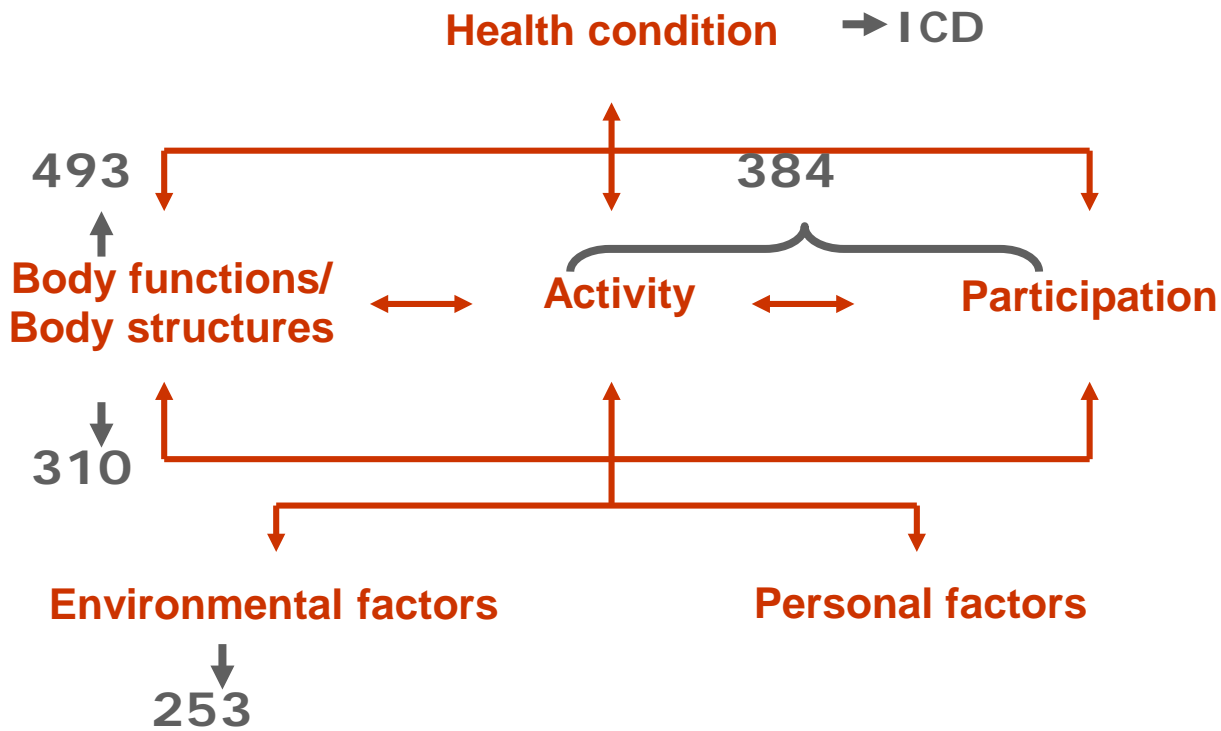


<http://www.who.int/classifications/icf/en/>

I discovered the ICF

Health condition (e.g. Depression)






Model to understand functioning

ICF International Classification of Functioning, Disability and Health

- Body functions
- Body structures
- Activity and Participation
- Environmental factors

1424



World Health Organization
Geneva

Tool for description of functioning

**For over 10 years the ICF was
basis of my research**

The **ICF** as basis for

- literature reviews and identifying research gaps;
- studying the content **validity** of outcome measures;
- **developing** outcome measures;
- **linking information of surveys and comparing** the health of populations from different countries;
- describing signs and symptoms patients and **creating treatment plans**;
- predicting **health care costs**;
- ...

2014



WHO Head Quarters , Geneva

Health Information Systems

WHAT are Health Information Systems for?

- To inform indicators

WHY are Health Information Systems relevant?

- Policy makers
 - Identify and respond problems
 - Allocate resources effectively
- Planners and managers
 - Design more effective services
 - Monitor and evaluate services
- Clinicians
 - Provide quality and evidence-based services

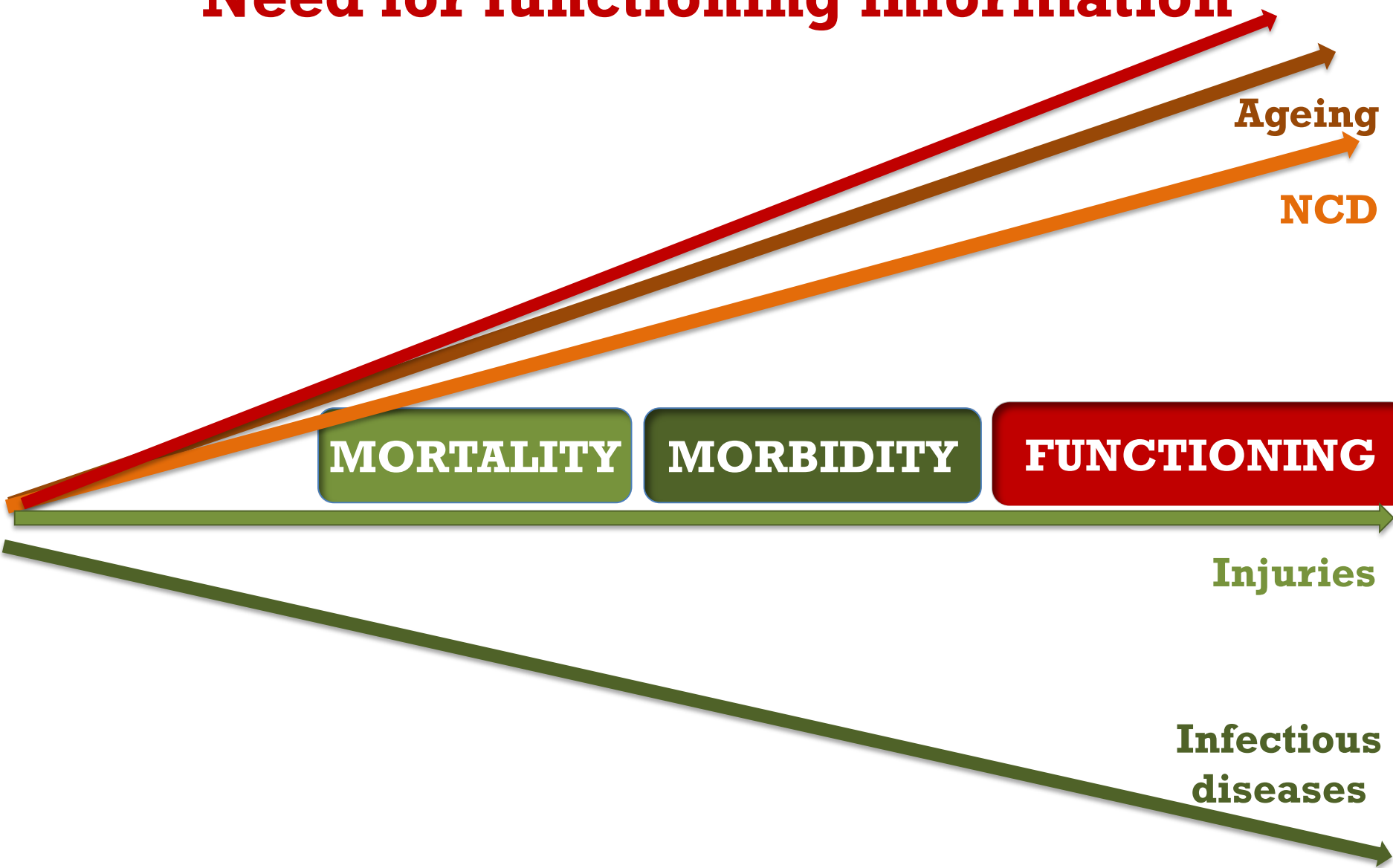
make **evidence informed decisions** .

Surprise

**Most countries in the world
do not include **functioning**
information **or the ICF** in their
Health Information Systems**

**At least 15% of the world
population lives with
limitations in functioning**

Need for functioning information



Study 1

What does predict postoperative complications in older adults?

(Systematic review: 44 studies and 12,281 patients)

Predictors of complications:

Geriatric syndromes of frailty

(OR=2.16)

Cognitive impairment

(OR 2.01)

Depressive symptoms

(OR 1.77)

Traditional prognostic factors were not predictors:

Age, American Society of Anesthesiologists status

Study 2

How good is functioning in predicting costs for patients with mood and anxiety disorders?

(Prospective cohort study, N=102)

Functioning predicts better the costs of care than traditional factors, such as diagnosis or symptoms severity.

THE LANCET

Volume 388 · Number 10053 · Pages 1447-1850 · October 8-14, 2016

www.thelancet.com

The Global Burden of Disease Study 2015



Top 10 causes of years lived with disability in Japan

1. Low back & neck pain

2. Sense organ diseases

3. Skin diseases

4. Depressive disorders

5. Diabetes

6. Migraine

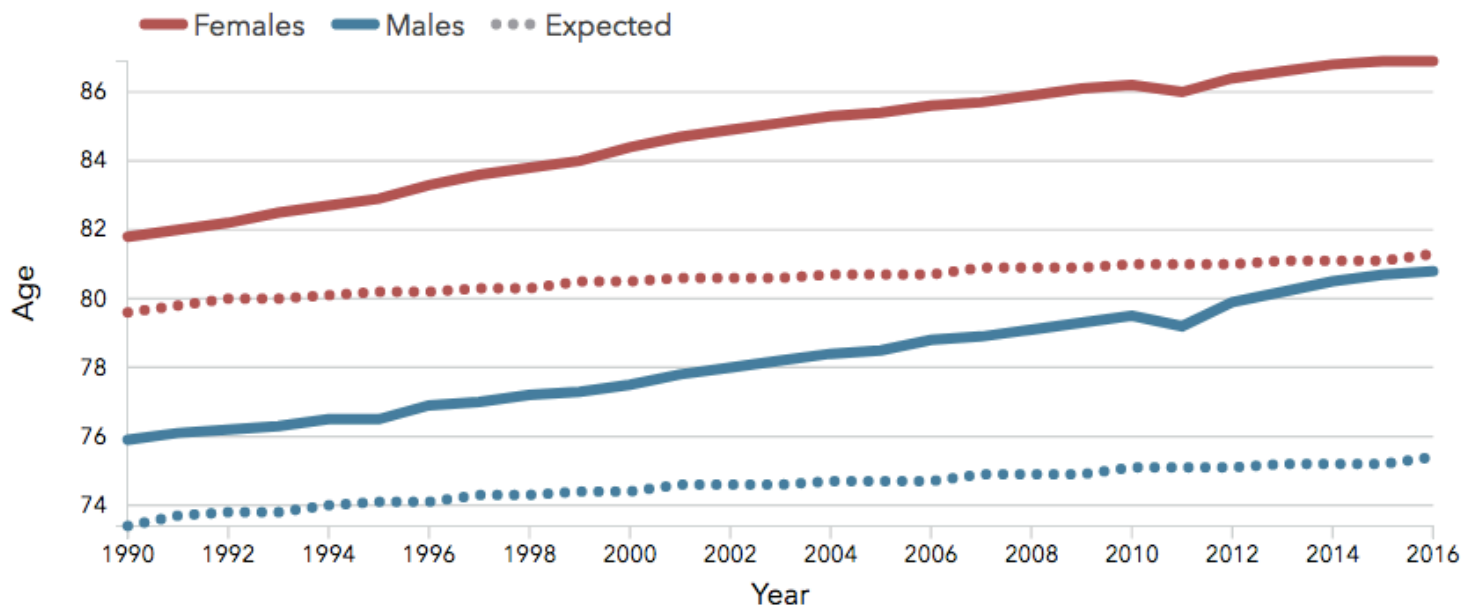
7. Falls

8. Other musculoskeletal

9. Oral disorders

10. Alzheimer disease

How long do people live in Japan*?



Capacity



Intrinsic capacity of the body

The outcome of the interaction with the environment

Performance/ Functional ability





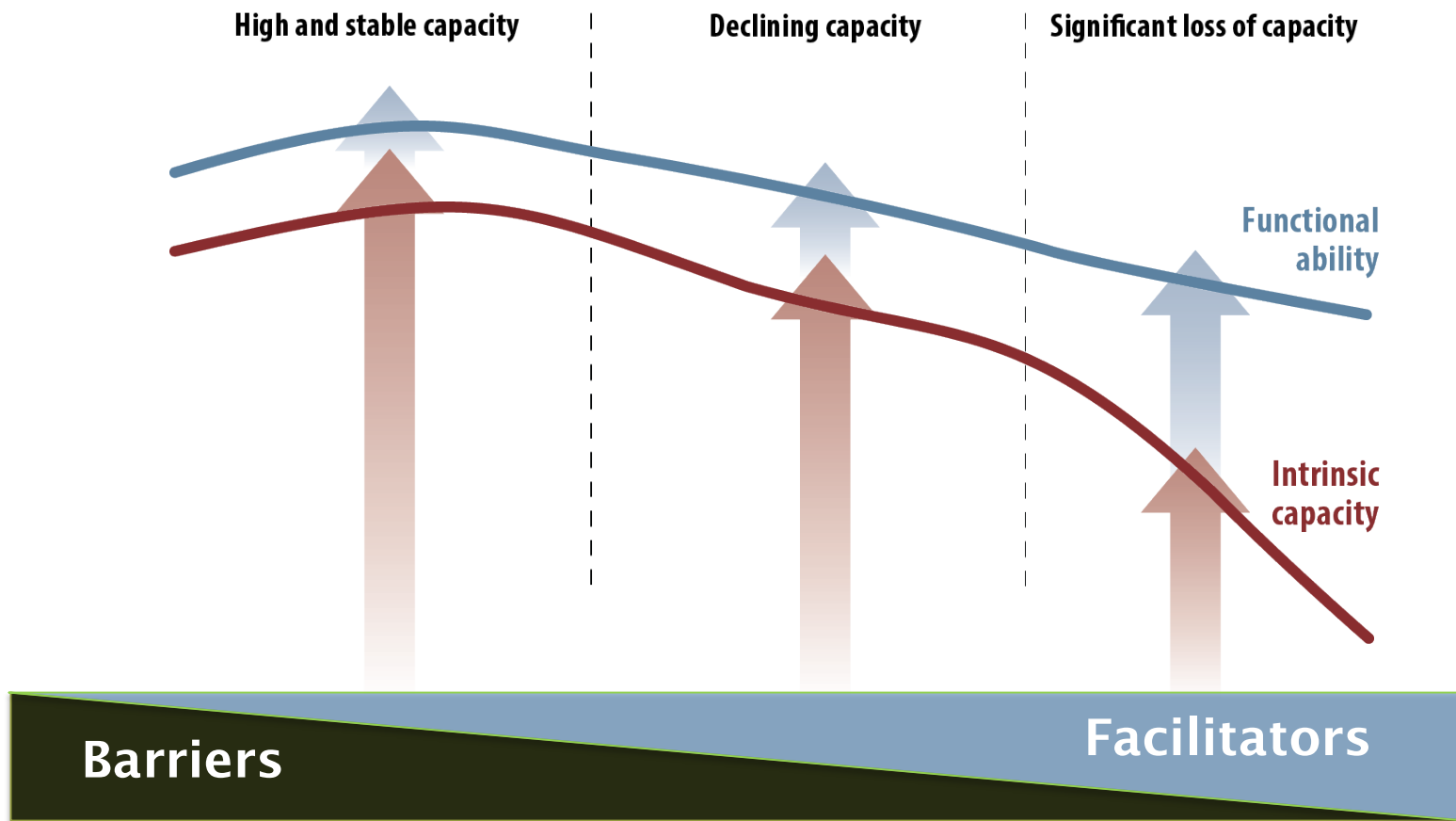
WORLD
REPORT
ON
**AGEING
AND
HEALTH**

Healthy Ageing
is the process of
developing and
maintaining the
functional ability

that enables
well-being
in older age

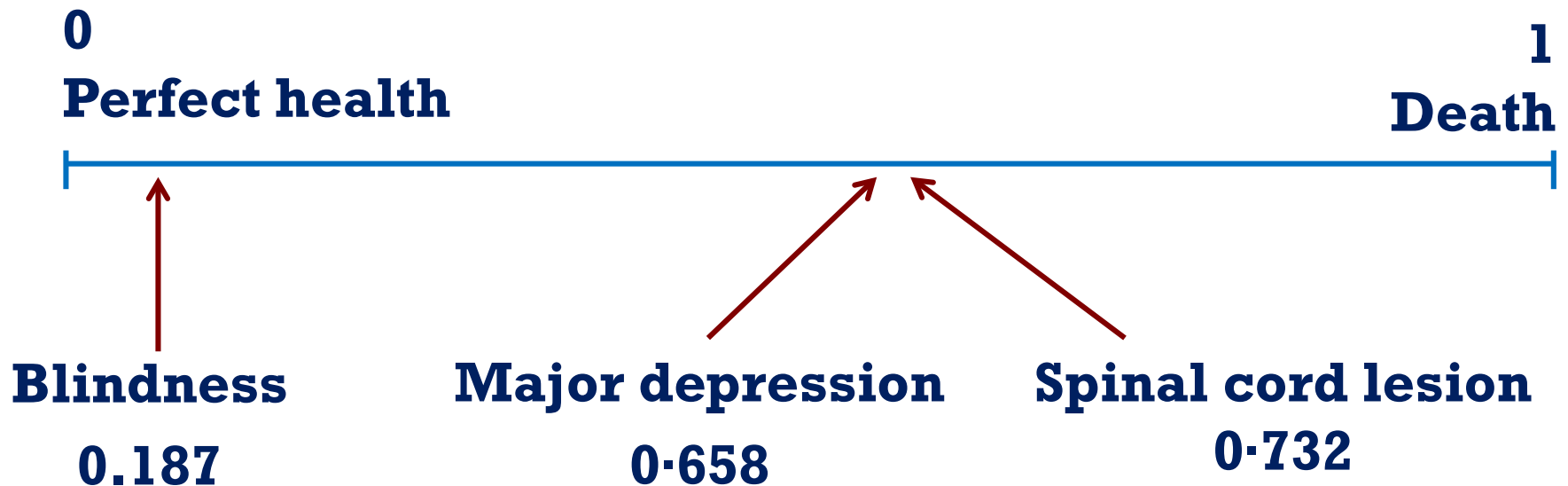


Environments influence capacity and ability (performance)



GBD is a 'synthetic' measure

- It is based in weights (values of burden) people give to health conditions
- Weights (values of burden) are not derived from persons experiencing the diseases



Summarizing

- The collection of functioning information is becoming increasingly important for making evidence informed decisions in health care
- The GBD provides useful but not sufficient information for health care decision making at country level

Sustainable Development Agenda

1 NO POVERTY 	2 NO HUNGER 	3 GOOD HEALTH 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION 
7 CLEAN ENERGY 	8 GOOD JOBS AND ECONOMIC GROWTH 	9 INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION 
13 PROTECT THE PLANET 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE AND JUSTICE 	17 PARTNERSHIPS FOR THE GOALS 	 THE GLOBAL GOALS For Sustainable Development

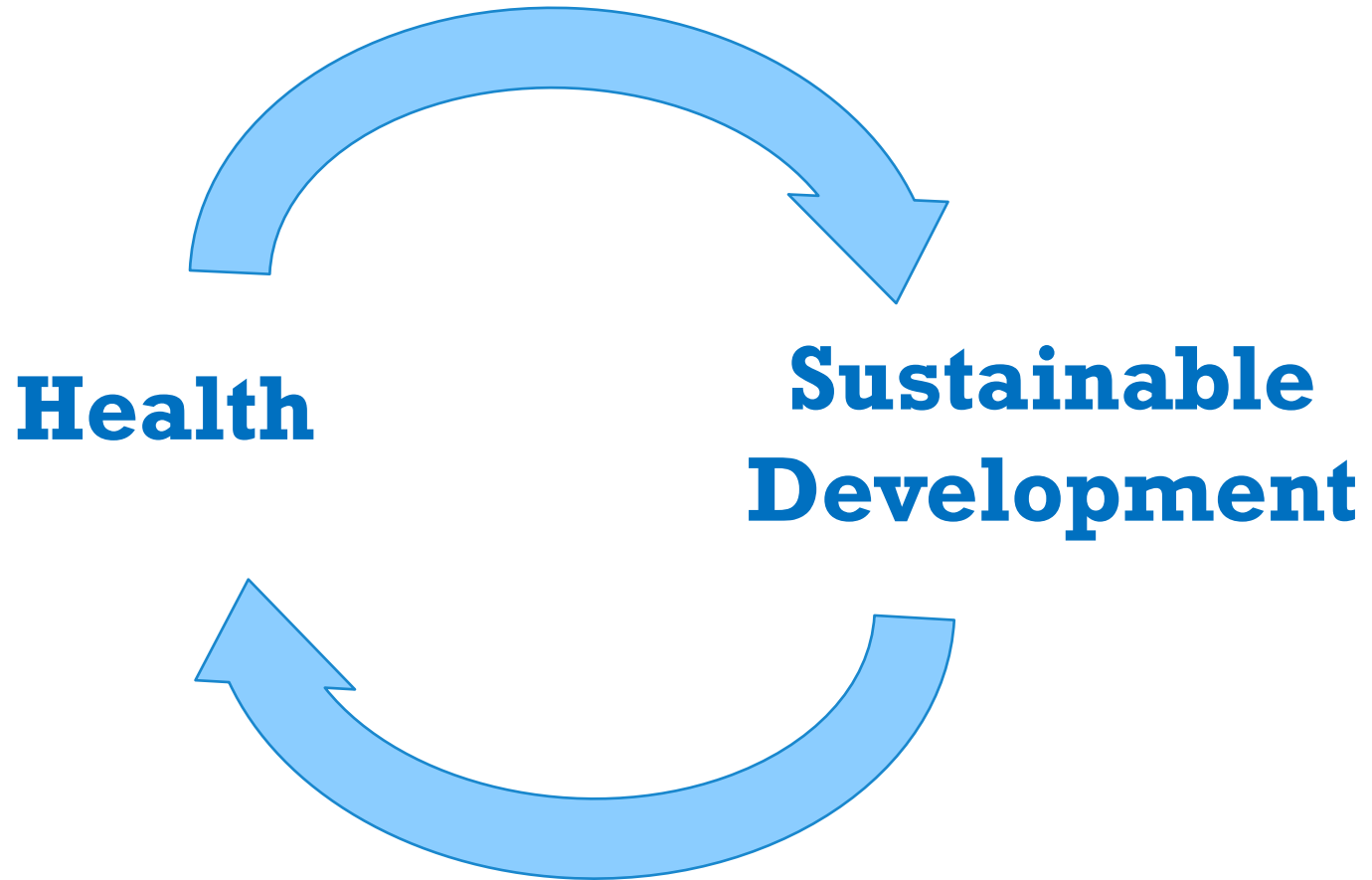
World Health



Goal 3

**Ensure healthy
lives and promote
well-being for
ALL at ALL ages**

Universal Health Coverage



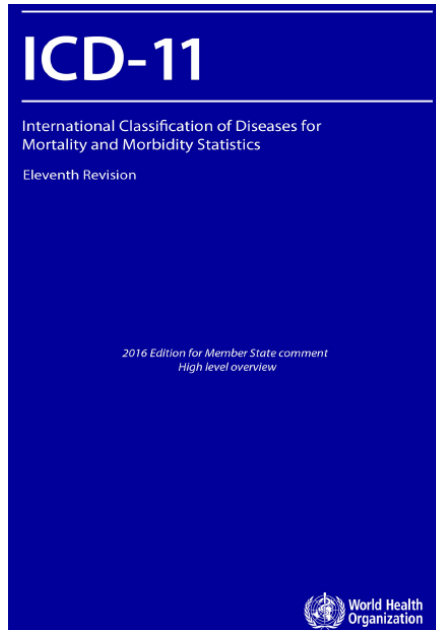
Universal Health Coverage

- Provision of high-quality, essential services for
 - Health promotion,
 - Prevention,
 - Treatment,
 - **Rehabilitation** and
 - palliation

according to need

- Protection from **financial hardship**, including possible impoverishment, due to out-of-pocket payments

3 Main WHO Classifications



Health strategies in UHC

PROMOTION

PREVENTION

CURATIVE

REHABILITATION

PALLIATION

Main Impact indicators

Health

Morbidity

Mortality
Recovery
Disease control

Functioning

Quality of Life

ICF

ICD

ICD
ICF

ICF
ICD

ICHI

Integrated health services

Health services that are managed and delivered so that people receive

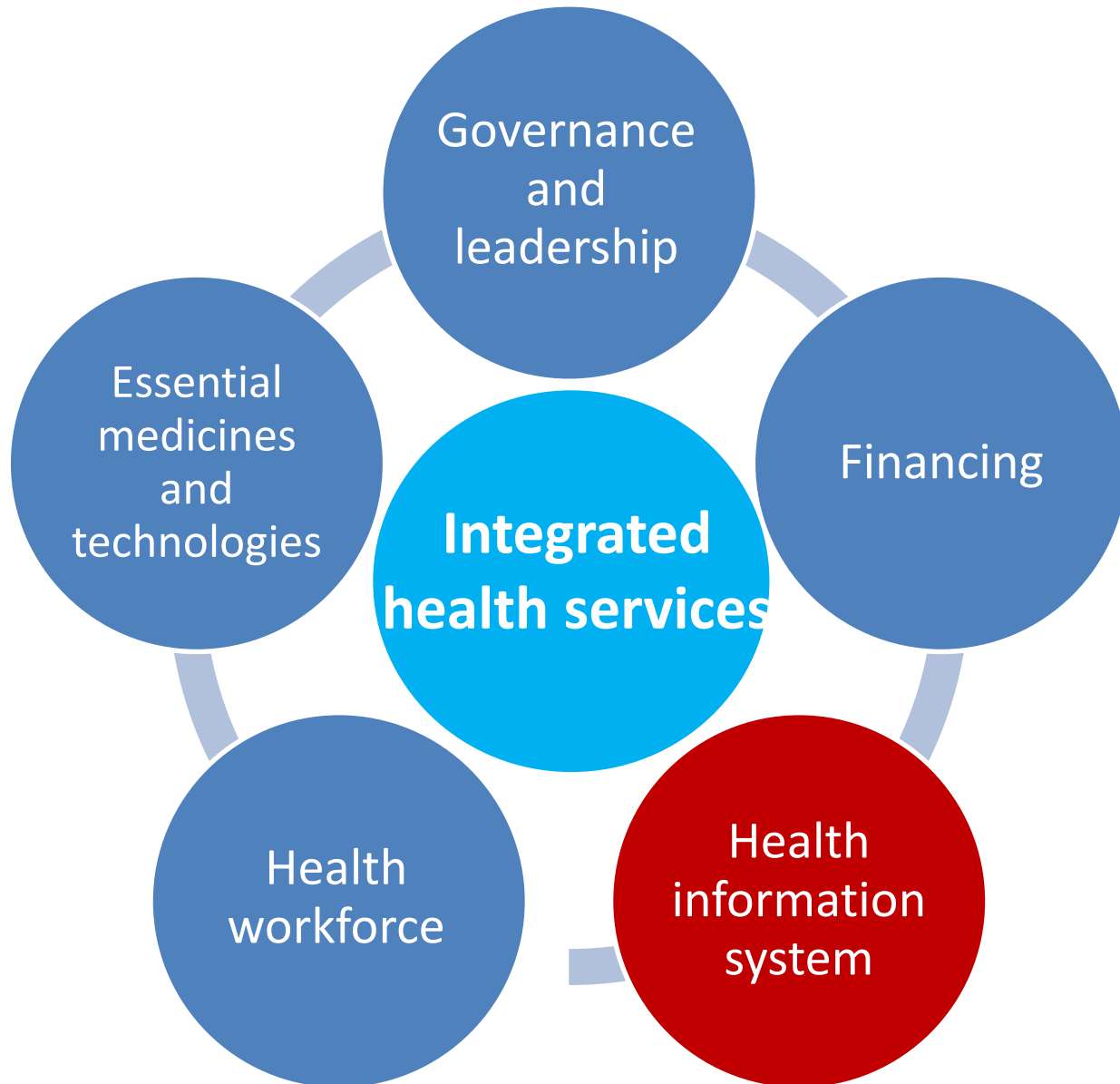
a continuum of health **promotion**, disease **prevention**, **diagnosis**, **treatment**, **disease-management**, **rehabilitation** and **palliative care** services,

coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the **life course**.

Strengthening the Health System

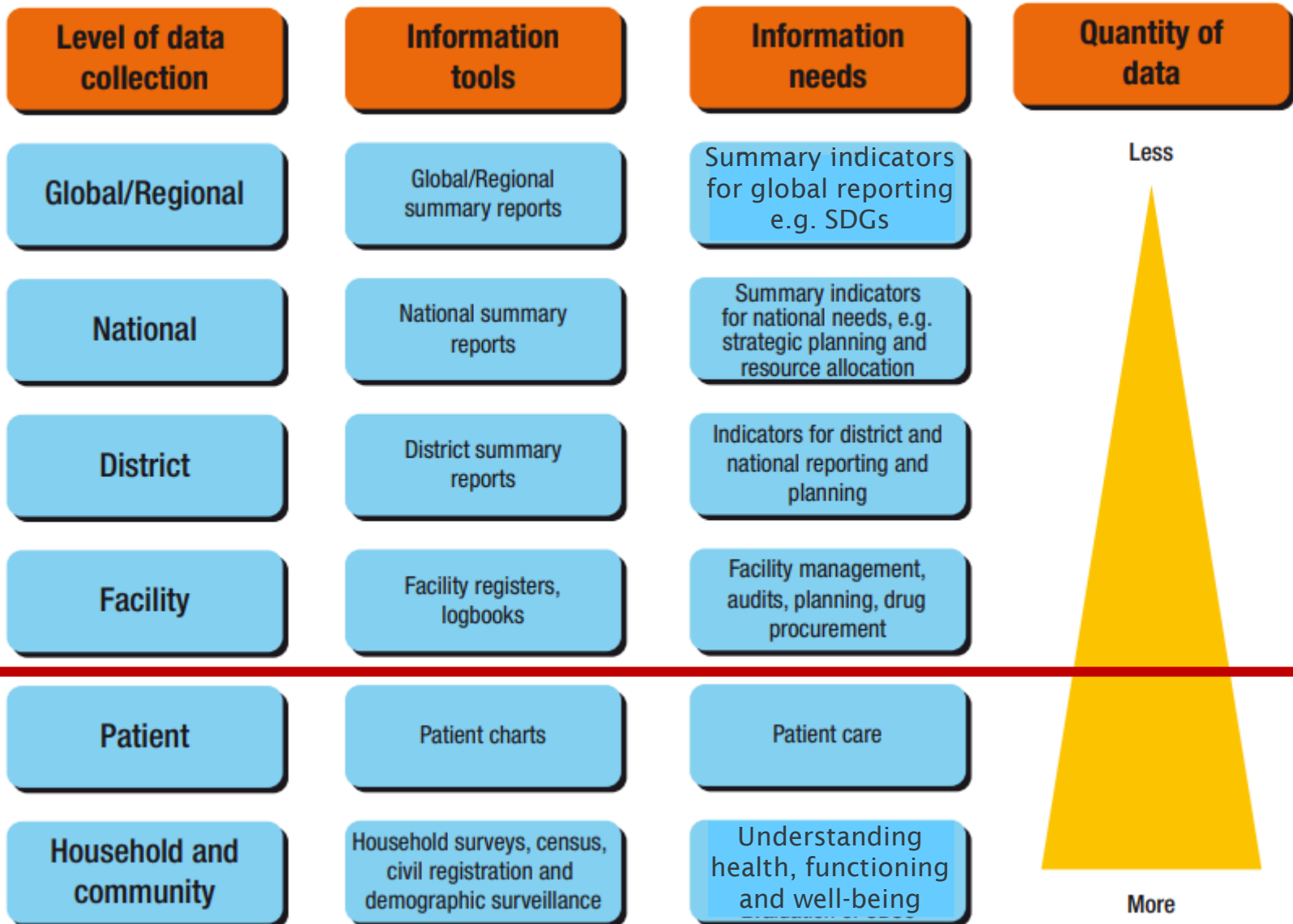


Strengthening the Health System



**What does it mean strengthening
Health Information Systems in
relation to functioning?**

Levels of data collection in HIS



1



Model Functioning and Disability Survey

Model Disability Survey

Capacity



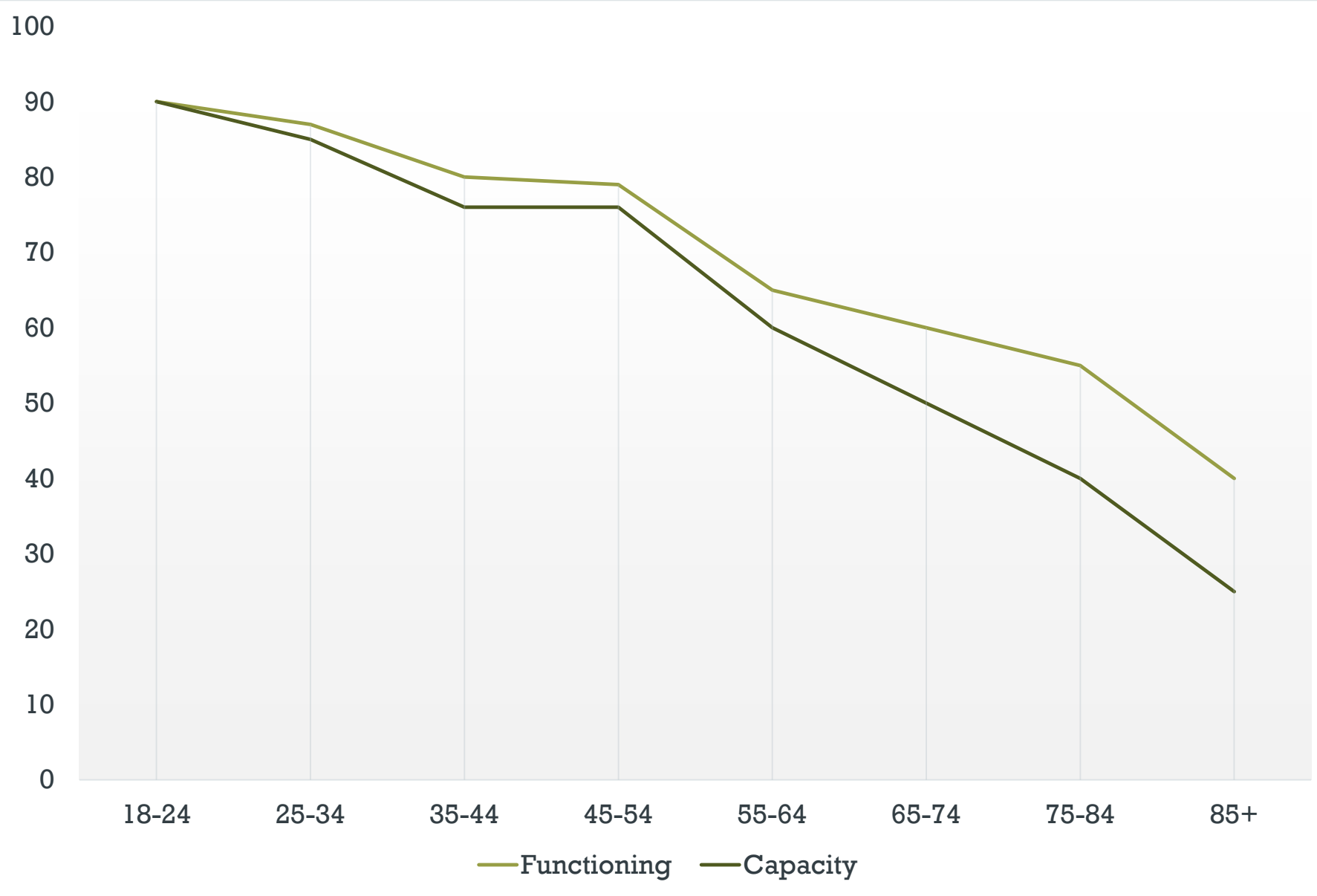
Intrinsic capacity of the body

Performance/ Functional ability



The result of the interaction of capacity with the environment and the person

Comparison between capacity and performance /functional ability by age.



MDS - Implementations and testing

- Full national implementation completed
- Regional implementation completed
- National implementation - brief MDS module
- Full national implementation in planning
- Pilot study completed
- Pilot study planned
- Cognitive testing completed



2

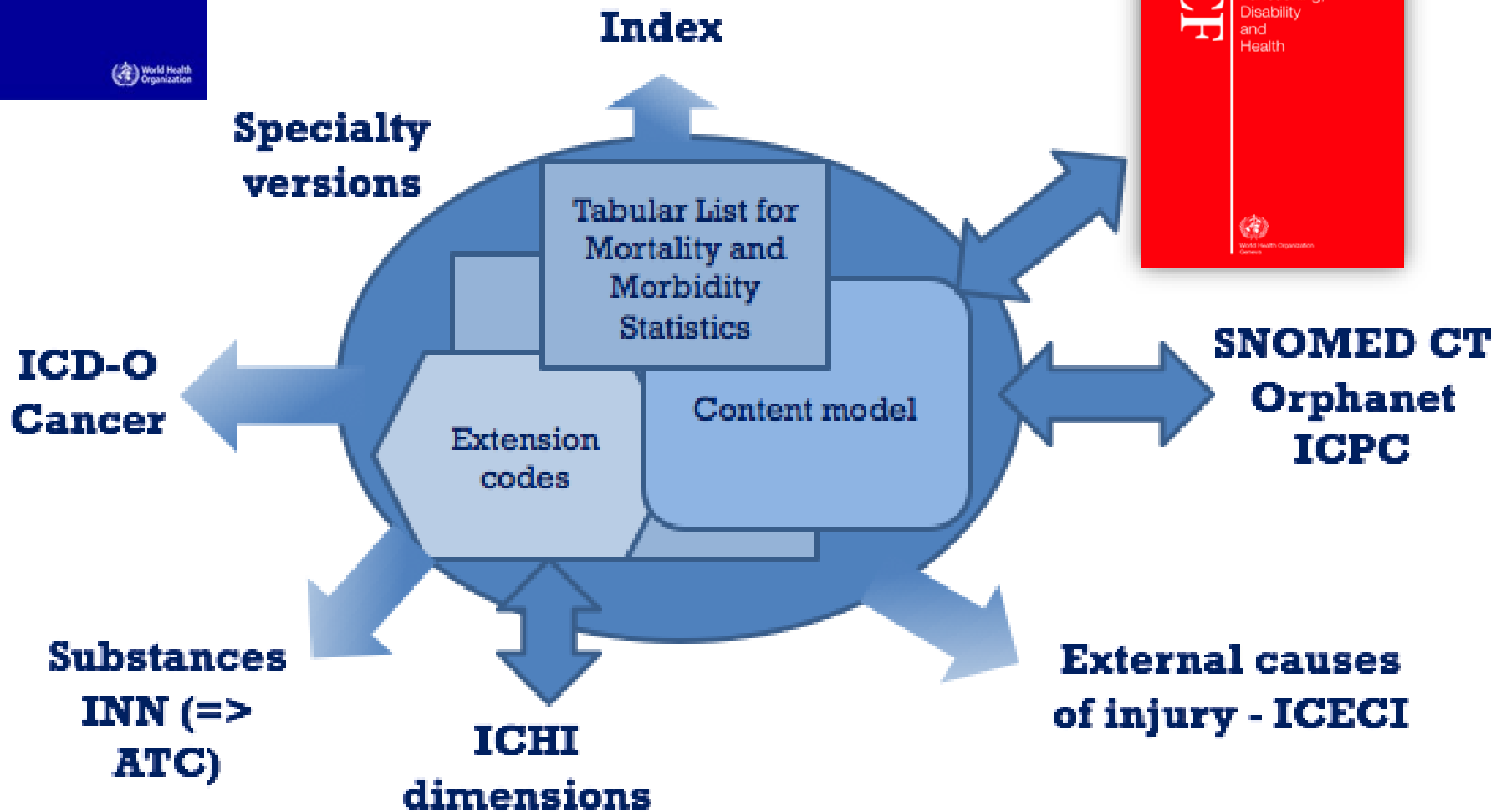
Summary

ICD-11

International Classification of Diseases for
Mortality and Morbidity Statistics
Eleventh Revision



ICD-11 Foundation



ICF

International
Classification of
Functioning,
Disability
and
Health



ICD-11 Beta Draft (Mortality and Morbidity Statistics)

Last Update: Jan 18

Search [Advanced Search]

Foundation ?

Linearizations ?

Contributions

Info

ICD-11 Beta Draft - Mortality and Morbidity Statistics

- ▶ 01 Certain infectious or parasitic diseases
- ▶ 02 Neoplasms
- ▶ 03 Diseases of the blood or blood-forming organs
- ▶ 04 Diseases of the immune system
- ▶ 05 Endocrine, nutritional or metabolic diseases
- ▶ 06 Mental, behavioural or neurodevelopmental disorders
- ▶ 07 Sleep-wake disorders
- ▶ 08 Diseases of the nervous system
- ▶ 09 Diseases of the visual system
- ▶ 10 Diseases of the ear or mastoid process
- ▶ 11 Diseases of the circulatory system
- ▶ 12 Diseases of the respiratory system
- ▶ 13 Diseases of the digestive system
- ▶ 14 Diseases of the skin
- ▶ 15 Diseases of the musculoskeletal system or connective tissue

- ▶ 22 Injury, poisoning or certain other consequences of external causes
- ▶ 23 External causes of morbidity or mortality
- ▶ 24 Factors influencing health status or contact with health services
- ▶ 25 Codes for special purposes
- ▶ 26 Traditional Medicine conditions - Module I
- ▶ **V Supplementary section for functioning**
- ▶ X Extension Codes

NEWS: We have new [training videos](#) on the ICD-11 Browser.

ICD-11 Beta Draft

Welcome to the ICD-11 Browser

You can browse the ICD-11 proposed content here

If you wish to participate in the Beta Phase you may create an account for yourself from by [registering](#) to the ICD-11 Browser. Registering will provide you additional functionality such as accessing print materials, commenting, making change proposals, receiving notifications, etc.

Caveats

ICD-11 Beta draft is:

- **NOT FINAL**
- updated on a daily basis
- It is **not approved** by WHO
- **NOT TO BE USED** for CODING except for agreed FIELD TRIALS



Related Information

[More information](#) on ICD-11 Beta Phase

[What to expect, when and how?](#)

For more information about how to use the ICD-11 Browser, please see

ICD-11 Beta Draft (Mortality and Morbidity Statistics)

Search [Advanced Search]

Foundation [?] Linearizations [?] Contributions Info

- ▶ 22 Injury, poisoning or certain other consequences of external causes
- ▶ 23 External causes of morbidity or mortality
- ▶ 24 Factors influencing health status or contact with health services
- ▶ 25 Codes for special purposes
- ▶ 26 Traditional Medicine conditions - Module I
- ▼ **V Supplementary section for functioning**
 - ▶ Mental functions
 - ▶ Sensory functions and pain
 - ▶ Voice and speech functions
 - ▶ Functions of the cardiovascular, haematological, immunological and respiratory systems
 - ▶ Functions of the digestive, metabolic and endocrine systems

 - ▶ Genitourinary and reproductive functions
 - ▶ Neuromusculoskeletal and movement-related functions
 - ▶ Learning and applying knowledge
 - ▶ General tasks and demands
 - ▶ Communication
 - ▶ Mobility
 - ▶ Self-care
 - ▶ Domestic life
 - ▶ Interpersonal interactions and relationships
 - ▶ Major life areas
 - ▶ Community, social and civic life
 - ▶ Functions of the skin and related structures
- ▶ X Extension Codes

Foundation Id : <http://id.who.int/icd/entity/231358748>

V Supplementary section for functioning

Description

The list of 47 entities is intended for assessment and scoring in the context of ICD - using ICF functioning domains of high explanatory power (ICF Annex 9).

The categories are intended to be used as a set. the set has been defined in a way that general and domain specific summary scores can be calculated using the WHO Disability Assessment Schedule 2.0 (WHO DAS 2.0) or the WHO Model Disability Survey (MDS).


A questionnaire is provided with the ICD-11 Reference Guide. The questions for the individual items are also displayed together with the individual items.

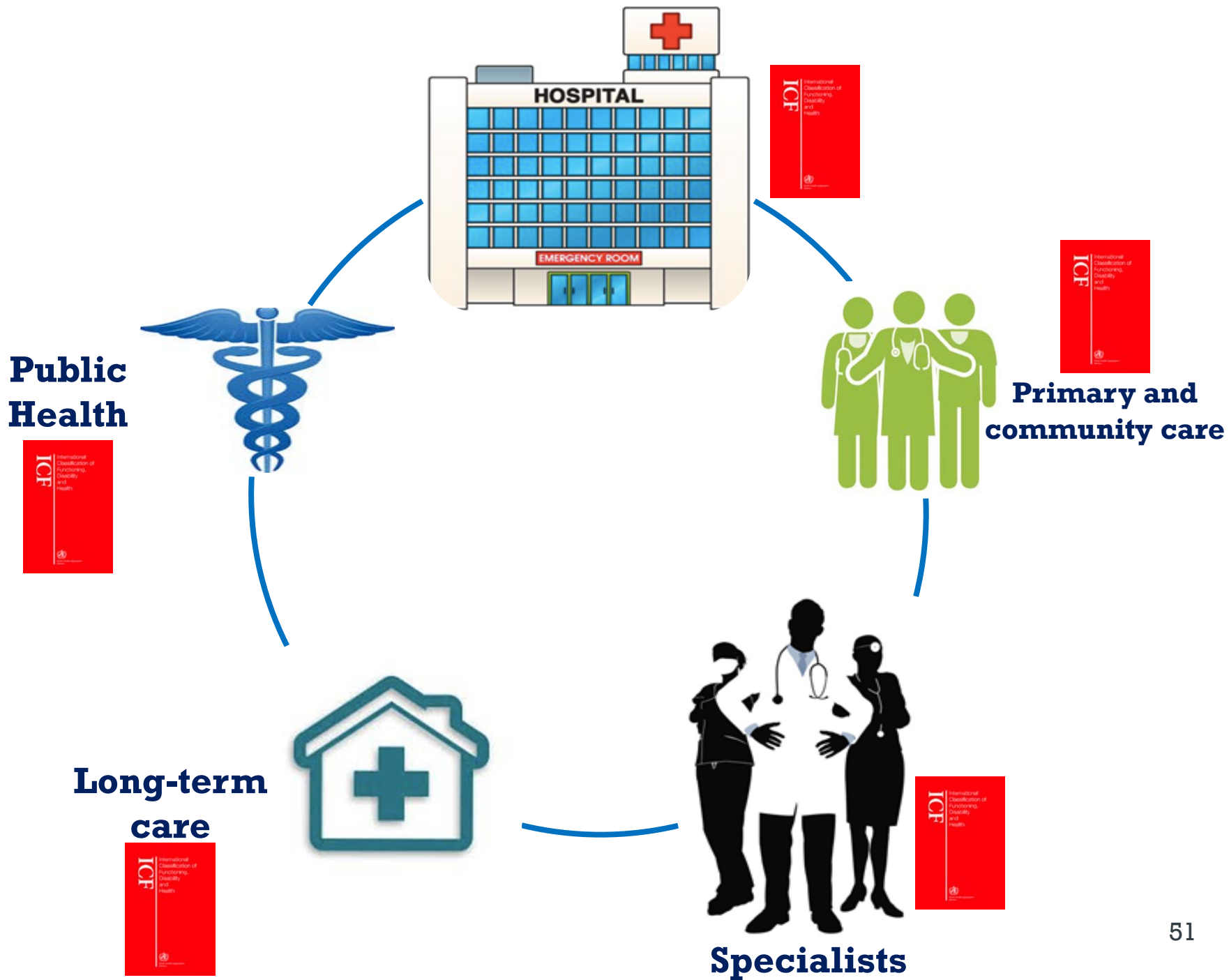
Exclusions

- Functions of the skin and related structures *

All Index Terms

There are no index terms associated with this entity

 Please read the Caveats



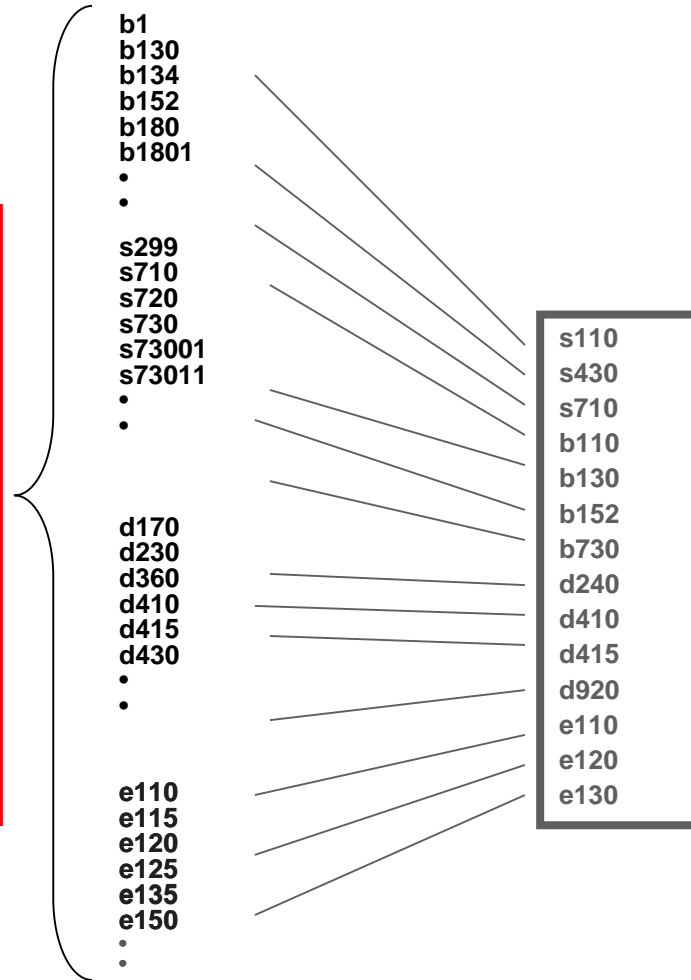
Example

Nationwide implementation of ICF in rehabilitation



German Social
Accident Insurance

1



2

For each ICF Category assessment instruments were selected

Brief ICF Core Set for Hand Conditions

ICF code	Title
b152	Emotional functions
b265	Touch function
b270	Sensory functions related to temperature and other stimuli
b280	Sensation of pain
b710	Mobility of joint functions
b715	Stability of joint functions
b730	Muscle power functions
b760	Control of voluntary movement functions
b810	Protective functions of the skin
s120	Spinal cord and related structures
s720	Structure of shoulder region
s730	Structure of upper extremity
d230	Carrying out daily routine
d430	Lifting and carrying objects
d440	Fine hand use
d445	Hand and arm use
d5	Self-care
d6	Domestic life
d7	Interpersonal interactions and relationships
d840 - d859	Work and employment
e1	Products and technology
e3	Support and relationships
e5	Services, systems and policies

TOUCH FUNCTION

In the screening, touch function is being assessed by using the Ten-Test. In case the Ten-Test indicates a problem, the amount of impairment is being rated by using the Moberg Test (object identification).

Moberg Test (object identification)

Specific test



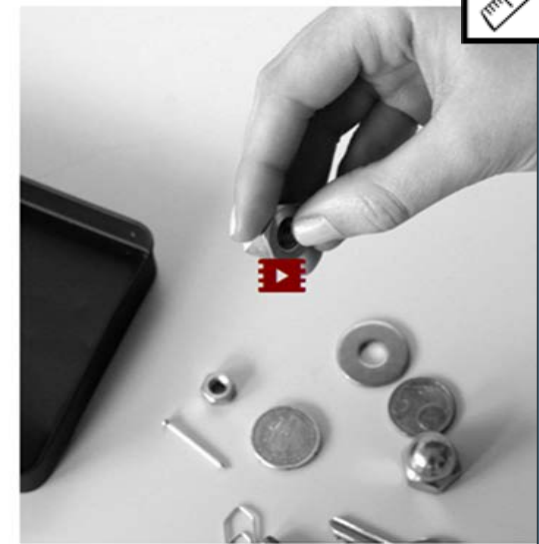
Material: Twelve small objects (as listed in the documentation example), timer

Performance: The patient is allowed to have a look at the objects beforehand. Afterwards the patient closes his/her eyes. One object is being placed in a box and the patient's task is to identify and name the object by touching it with the fingers and hand without having a look at it. Time needed to identify the object is being assessed. In case the patient does not identify one object, he/she has to continue with another of the twelve objects. After that, the tasks have to be performed with the injured hand. The time needed to identify every object has to be recorded for both hands (in seconds, one decimal) and the difference between both hands is calculated.

Documentation example:

Moberg Test (object identification)*	Time in sec right hand	Time in sec left hand	Difference
a) Screw	1,5	1,7	-0,2
b) Key	1,4	1,4	0
c) Nail	1,4	1,5	-0,1
d) Big hexagon nut (diameter 1,2 cm)	1,7	1,6	+0,1
e) 10 cent coin	1,9	2,1	-0,2
f) 5 cent coin	2,1	1,9	+0,2
g) Round washer (diameter 1,5 cm)	1,6	1,6	0
h) Safety pin (length 4 cm)	1,9	1,8	+0,1
i) Paper clip (length 2,5 cm)	2,0	1,9	+0,1
j) Small hexagon nut (diameter 0,8 cm)	2,2	2,2	0
k) Wing nut	1,9	1,8	+0,1
l) Squared small nut (length 1 cm)	2,0	2,1	-0,1

*Ref: Ng CL, Ho DD, Chow SP. The Moberg pickup test: results of testing with a standard protocol. J Hand Ther. Oct-Dec; 1999;12(4):309-312.



3

Data entry into an electronic health record


The screenshot shows a software interface for data entry. At the top, there's a header with 'Vorlagen: Leuchtitum Hauptformular' and 'Zeit: [aktuell]'. Below this is a table with columns 'Datum' and 'Anmerkung'. The table contains two rows of data for the date '02.02.2015'. To the right of the table are several form fields: 'Berufsangabe/Tätigkeit' (Angestellte), 'Zuständige BG' (BG Gesundheitsdienst), 'Dominante Seite' (rechts, links, beidhändig), 'Betroffene Seite' (rechts, links, beidseitig), 'Heilbehandlung' (Ambulante, Stationäre, Behandlung im Rahmen des Reha-Managements), and 'Status Arbeitsfähigkeit' (Ja, Nein). A green 'Aktualisieren' button is visible. Below the table, there's a section for 'Körperstrukturen - Schädigungen' with a list of body parts and their sides (rechts, links). A box for 'Einschluss Studie' and 'Patienten-ID Studie' contains the name 'Ulrich'.



The screenshot shows the ICF Assessment interface. It features several sections for data entry: 'Aktivitäten - Partizipation - Beeinträchtigungen' with a table for screening (nicht durchführbar, nicht relevant) and specific tests (Umfangmessung/Volumetrie, Moberg Objektidentifikation, Semmes-Weinstein Test, Vorstellung Schmerztherapie, Purdue Pegboard Test, Abklärung Psychologe); 'Arbeitsfähigkeit / Teilhabeleistungen'; 'Umwelt-, Sozial- und Arbeitsfaktoren'; and 'Studienrelevante Daten'. A red circle highlights the 'Bericht' button at the bottom right.

4

Standard reporting


BG
 Berufsgenossenschaftliches
 Unfallkrankenhaus Hamburg

BG Trauma Hospital · 21027 Hamburg

Chief physician

Your reference: ABC-XYZ00
 Your message from:
 Our reference: DEF-XYZ00

Phone: 0123-456789
 Fax: 0123-456789
 E-Mail: mail@buk-hamburg.de
 Date: 15.07.2015

Insurance Organization
 Regional administration
 Street 4
 99999 City

Name, first name: Doe, John
 Date of birth: 01.01.1990
 Street, residence: Street 12, 99999 City
 Admission number: 87654321
 Day of the accident: 15.06.2015
 Insurance number: 12345678

Dear Ladies and Gentlemen

We report on John, Doe undergoing inpatient treatment from 15.06.2015 to 29.06.2015.

General information

Inpatient since: 15.06.2015
 Outpatient since: -----
 Insurance Organization: Name of the insurance
 Profession: Tool mechanics/trainee Currently in: Paid employment
 Employer: Example Employer
 Additional surgeries: No additional surgeries

Medication: -----
 Secondary diagnosis: -----

Anamnestic information

Day of the accident: 15.06.2015
 Diagnoses: Persistent irritation of soft tissue / redness 3rd digit after stump surgery
 Affected Hand: left
 Dominant hand: left-handed
 Description of the accident / course of the disease: ICD-10: S68.2
 Amputation of distal phalanxes of 3rd / 4th digit during work while working with a machine
Initial treatment: 15.06.2015 Hamburg
 Stump surgery 3rd / 4th digit, on middle phalanx
Subsequent surgery(ies):
 Revision, further shortening of middle phalanx, and local cornification, no infection!

Report from: 15.07.2015
 Doe, John, * 01.01.1990, 12345678

Functioning status: 15.07.2015

Last examination: 15.07.2015

Patient statement: still painful – further medication requested

Body structures

Amputations: Amputation 3rd digit, middle phalanx, left, stump surgery
 Amputation 4th digit, middle phalanx, left, stump surgery

Body functions

☹️	Swelling	↔️
	Touch function	
	Sensory functions	
☹️	Pain	↑️
☹️	Mobility of joint functions	↓️
☹️	Stability of joint functions	
☹️	Muscle power functions	↔️
☹️	Control of voluntary movement functions	↑️
😊️	Protective functions of the skin	↑️
☹️	Emotional functions	↔️

Activities & Participation

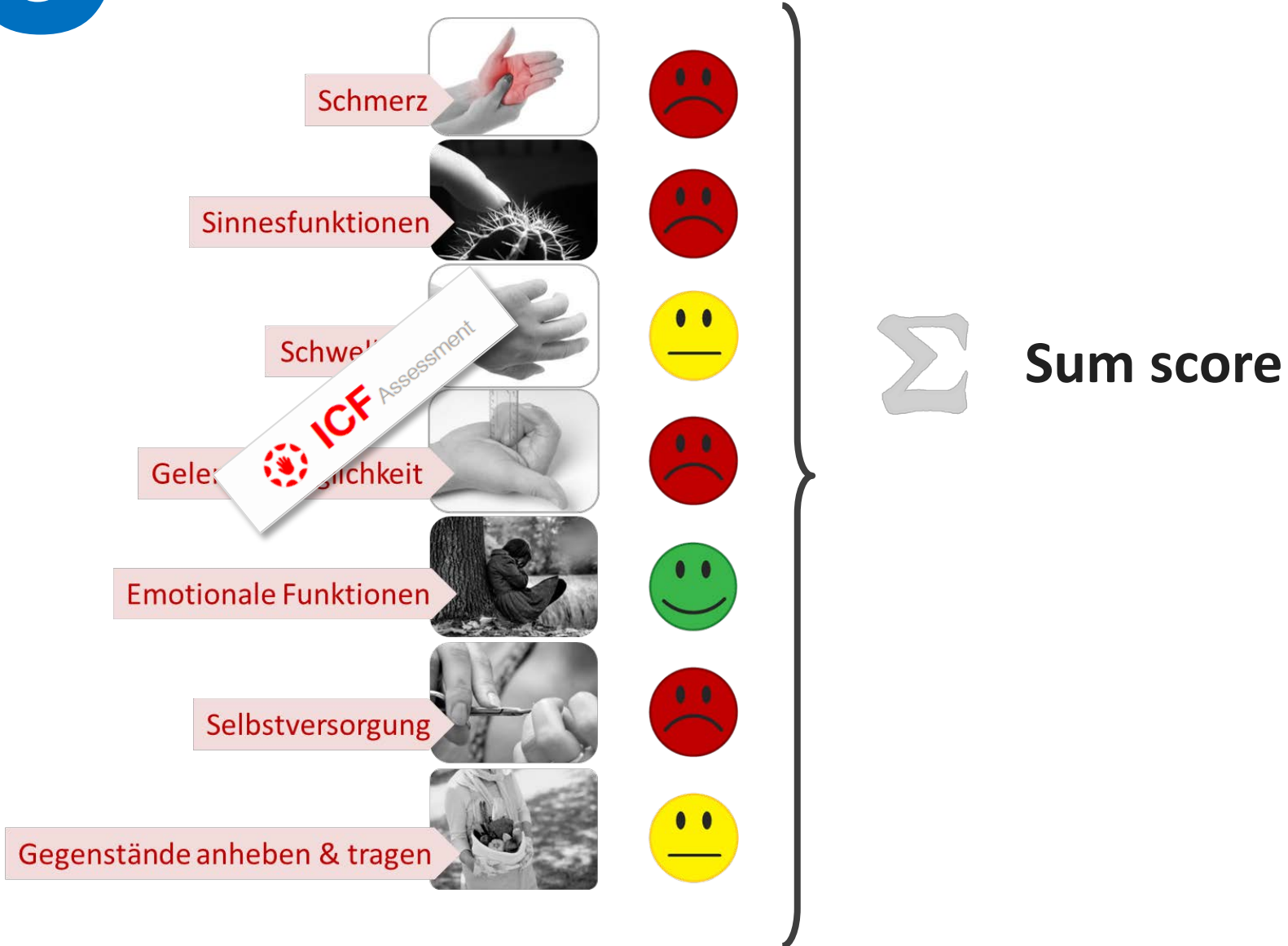
☹️	Fine hand use	↓️
☹️	Hand and arm use	↑️
☹️	Lifting and carrying objects	↑️
😊️	Carrying out daily routine	↑️
☹️	Self-care	↔️
☹️	Domestic life	↓️
😊️	Interpersonal interactions and relationships	
☹️	Work and employment	↔️

↑️ improvement ↔️ no change ↓️ worsening

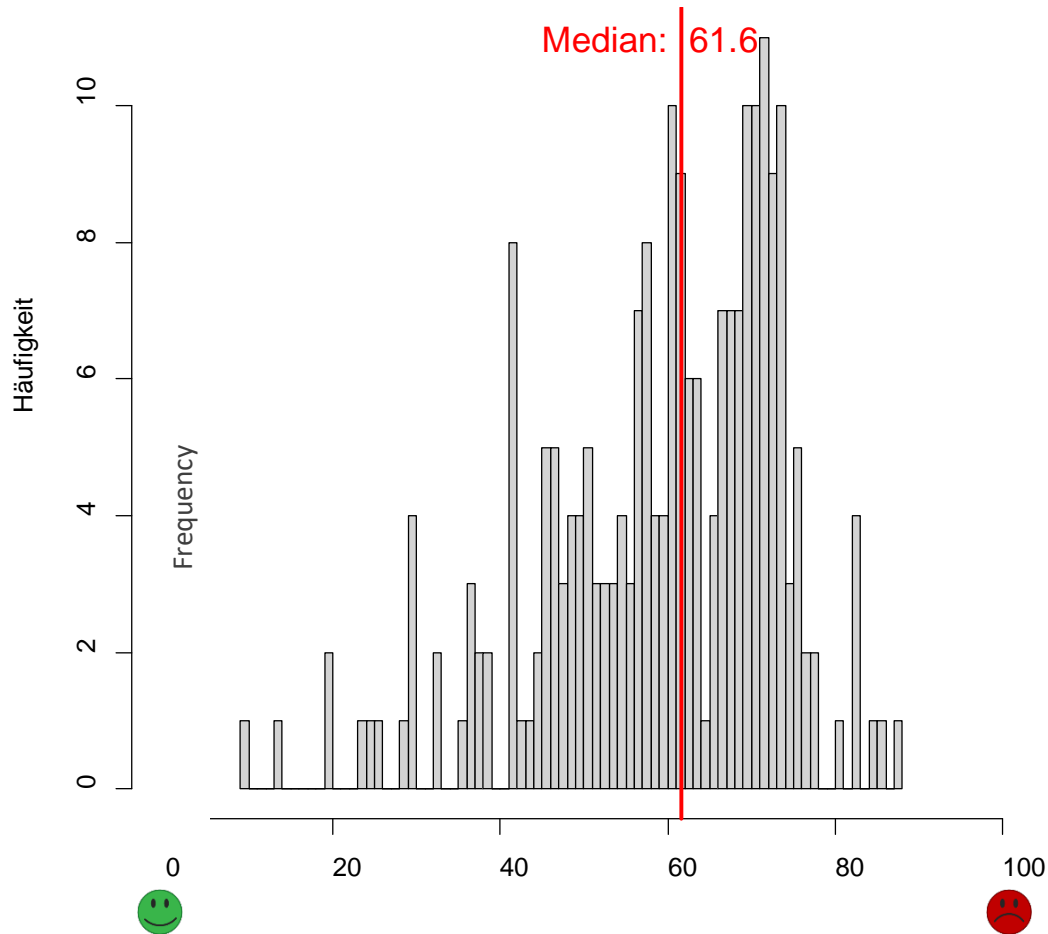
😊️ good ☹️ fair ☹️ poor

5

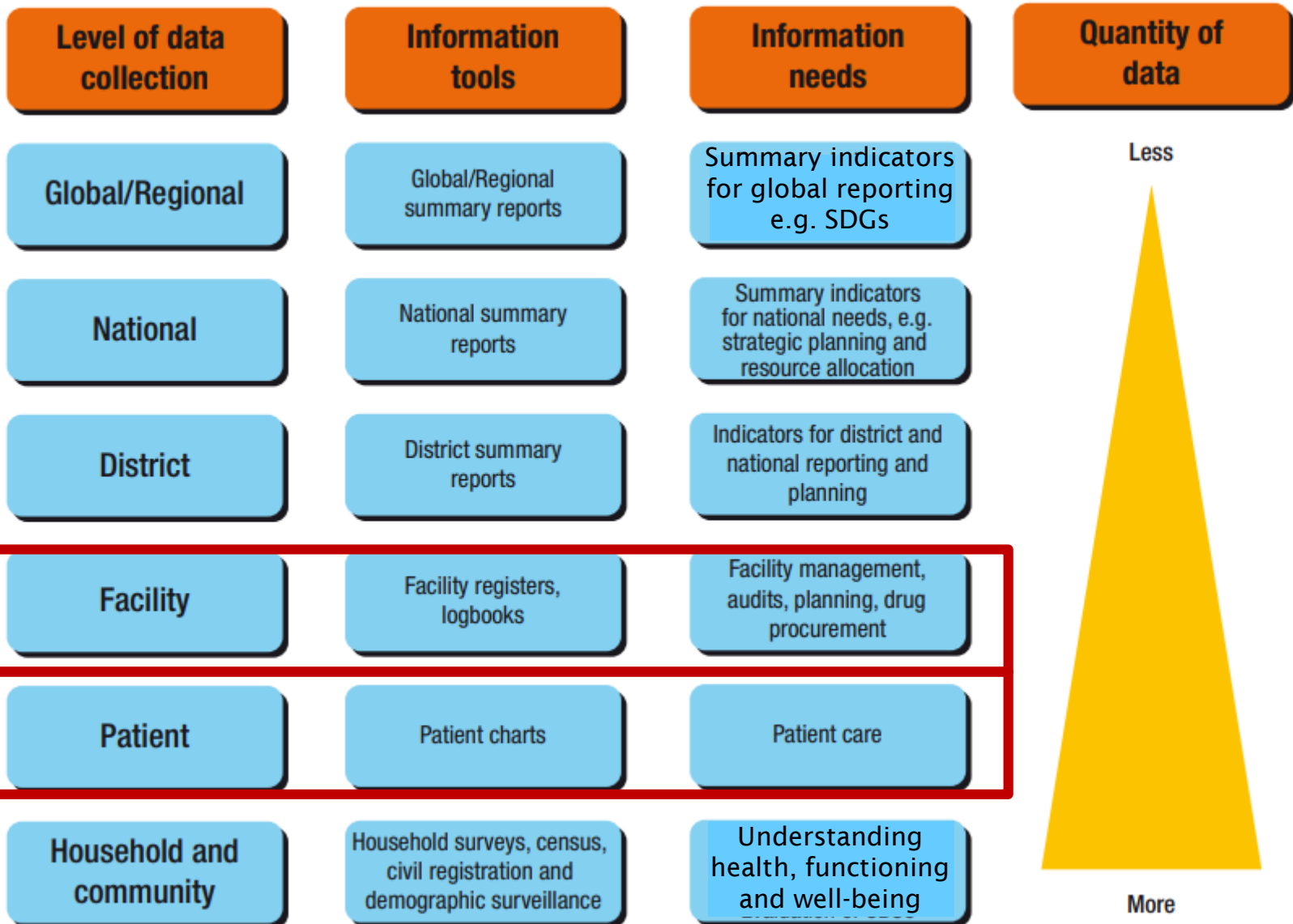
Creation of a sum score across categories with RASCH Analyses



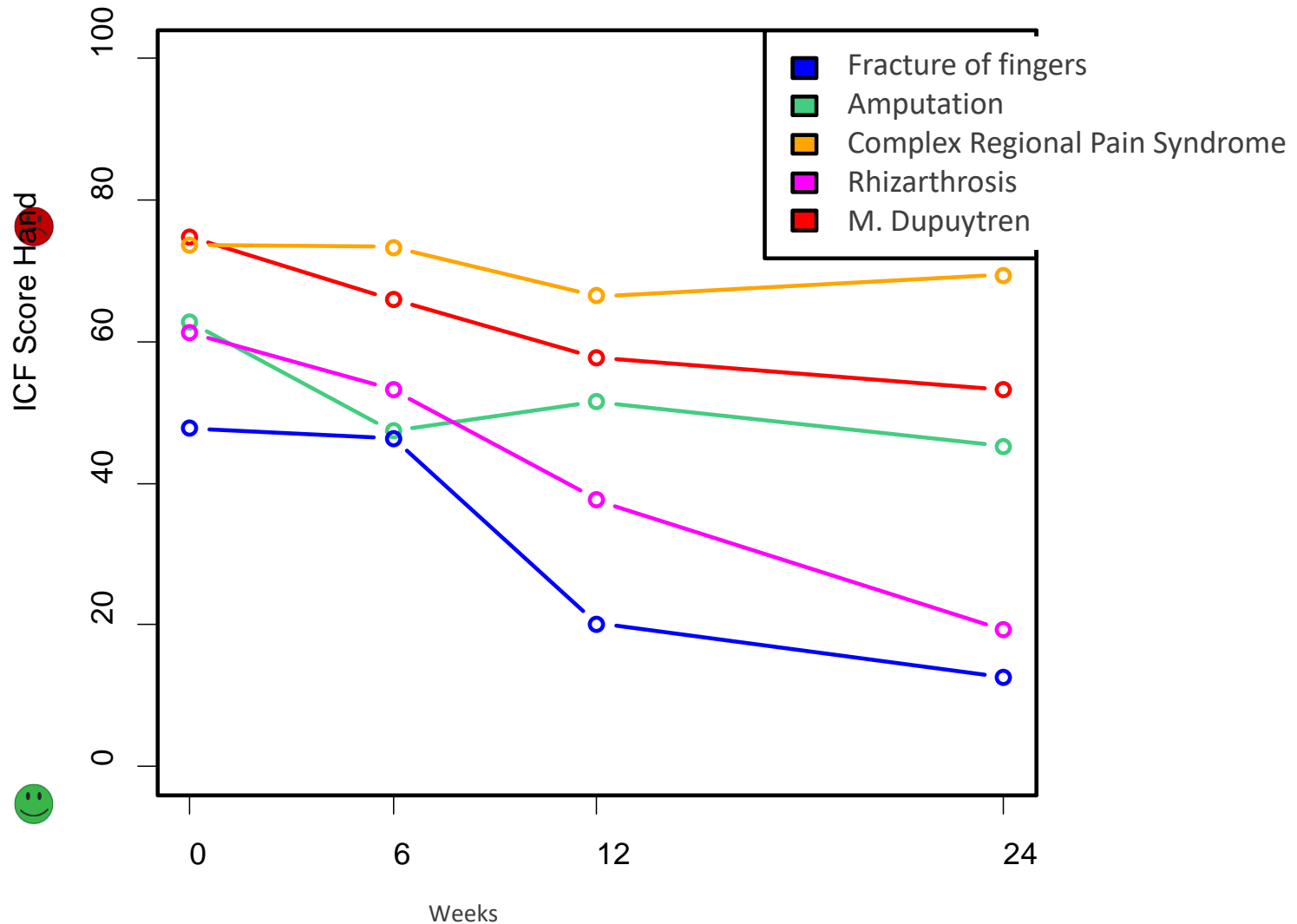
Aggregation of data at facility and national level



Levels of data collection in HIS



Change over time of single patients or groups



It can be done

**Look forward to hearing
about your examples**

Summary

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