

ICHI Reference Guide

International Classification of Health Interventions

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Co-chairs, ICHI Task Force
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Abbreviations

FDC	Family Development Committee
HDP	Hospital Data Project
ICD	International Classification of Diseases
ICF	International Classification of Functioning, Disability and Health
ICHI	International Classification for Health Interventions
ICPM	International Classification of Procedures in Medicine
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goal
UHC	Universal Health Coverage
WHO	World Health Organization
WHO-FIC	World Health Organization - Family of International Classifications

Introduction

WHO and the WHO-FIC Network have been developing the International Classification of Health Interventions (ICHI) since 2007. The aim is to meet a number of use cases including international comparisons, a classification for countries that lack one, a base for future redevelopment of national classifications and expanded content for countries that have a national classification to include a range of functioning and public health content. As well, ICHI can support global initiatives, such as the Sustainable Development Goals and Universal Health Coverage, and provide an information base for work on health system performance and patient safety.

ICHI covers all parts of the health system and contains a wide range of new material not found in national classifications. It describes health interventions using the three axes of Target, Action and Means. Users may choose to record as needed additional information about an intervention using a variety of extension codes.

ICHI versions have been released each year since 2012. These have led to the current Beta-3 version, containing approximately 8,000 intervention codes.

ICHI development was managed for the WHO by the ICHI Task Force, which works closely with the WHO-FIC Network. During this time a wide range of experts drawn from many countries and Collaborating Centres undertakes development work. Since October 2020 WHO has taken over the development of ICHI with migration to the WHO-FIC Platform.

Background

From its inception, the WHO Family of Health Classifications (WHO-FIC) has included three reference classifications, covering diseases, functioning and disability, and health interventions. The International Statistical Classification of Diseases and Related Health Problems (ICD) and the International Classification of Functioning, Disability and Health (ICF) have been in place for many years, but the classification of health interventions has been a gap in the Family.

The International Classification of Procedures in Medicine (ICPM)^[1] was published by WHO in 1978. It included diagnostic, medical and surgical interventions. Subsequently, the Heads of WHO Collaborating Centres for Classification of Diseases 'recognized that the process of consultation that had to be followed before finalisation and publication was inappropriate in such a wide and rapidly advancing field'. They therefore recommended that there should be no revision of the ICPM in conjunction with the Tenth Revision of the ICD^[2].

The Hospital Data Project (HDP), established by the European Union, worked throughout the early 2000s to establish comparisons of hospital diagnoses and interventions across Member States. Work on the HDP was reported to the WHO-FIC Network on several occasions and was one driver in the decision to begin development of ICHI. The 2006 report^[3] drew attention to the large number of interventions classifications used across European countries as a complicating factor in choosing a sentinel list of interventions for reporting and comparison. The final report of the HDP proposed 30 hospital interventions for international reporting (extending to 36 when further specifications were added for 6 interventions)^[4].

WHO analysed the interventions classification situation during 2006^[6]. Following discussion of that work at its 2006 meeting, the WHO-FIC Network decided to begin work on an international classification, through its Family Development Committee (FDC)^[6].

From 2015 - 2020 ICHI development was the responsibility of the ICHI Task Force. WHO took on this role from October 2020.

The Need for ICHI: Use Cases

1. International comparisons

The Organisation for Economic Co-operation and Development (OECD) and Eurostat currently collect data from member countries on a limited range of hospital interventions proposed by the Hospital Data Project (HDP)^[7]. In reporting, the impact of different classification systems is regularly noted. Eurostat reports on the 36 interventions proposed by the HDP^[8].

These international reporting processes demonstrate the demand for international comparisons of interventions across countries. Uses include comparing rates of interventions across countries, waiting times, and variations in response to specific health conditions (clinical pathways).

A comprehensive international classification of health interventions provides a sound base for comparisons, whether the international classification is used directly for collecting data, as a base for developing national classifications, or as a common structure to which codes in national classifications can be mapped for compiling international data. It provides a means of updating the HDP list, as well as conducting other regular or ad hoc comparisons.

2. National uses of ICHI

a) Countries with no classification of health interventions

Many countries, particularly countries with less developed health systems, currently have no classification. These countries lack the basic infrastructure to collect information on what is being done at the various levels of their health systems, with consequent adverse impacts on planning, quality and resource allocation, essential to health system development and improved health.

b) Countries which have used ICD-9-CM Volume 3

The U.S. interventions classification ICD-9-CM Volume 3 has been used by many countries. It has always been in the public domain, available for use without formality or cost.

From 1 October 2015, ICD-9-CM Volume 3 is no longer used in the U.S. health system, and it is not maintained. It has been replaced by ICD-10-PCS, also a public good, but a much more detailed classification.

c) Countries wishing to redevelop their national classification using ICHI

Classifications of health interventions have been developed and implemented over the past 20 to 30 years in a range of countries. The purpose has often been to support the development of casemix funding systems for hospitals. Countries or organisations seeking to redevelop their classification of health interventions would be able to do so,

subject to a WHO licence, using ICHI as a base. Material developed would need to be made available to WHO for use in ICHI as appropriate.

d) Addition of components of ICHI to national classifications

National classifications have focused on diagnostic, medical and surgical interventions. ICHI has a range of content not found in national classifications, or only incompletely covered. Interventions relevant to mental health, primary care, allied health, assistance with functioning, rehabilitation, prevention and public health are included in ICHI. Countries may incorporate this additional content from ICHI into national classifications.

3. Sustainable Development Goals

The United Nations General Assembly adopted the Sustainable Development Goals (SDGs) in 2015[9]. Goal 3, Good Health and Well-being, aims to ‘ensure healthy lives and promote well-being for all at all ages’. This Goal contains 13 targets, several of which relate to health interventions, including prevention and treatment of non-communicable diseases and promotion of mental health and well-being (Target 3.4), universal access to sexual and reproductive health-care services (Target 3.7), access to quality essential health-care services (Target 3.8), and tobacco control (Target 3.A). In addition, there are targets under other Goals that relate to health interventions, such as ending malnutrition (Target 2.2).

To monitor progress against these goals, and to assist in the development, financing and implementation of specific programs appropriate to each particular region and country, it is important to have a common classification that can be used to describe interventions across countries and regions.

4. Universal Health Coverage

Universal Health Coverage (UHC) is a major WHO priority. It is defined as ‘ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services’^[10]. Example interventions that should be universally available include antenatal care, measles vaccination and hypertension treatment^[11]. Universal Health Coverage is an SDG Target.

In providing a common structure and terminology for the description of interventions, ICHI will be valuable in specifying indicators for monitoring implementation of UHC.

5. Patient Safety and Quality

Both sources of harm and mode of harm are central to the study of patient safety and quality issues. Patient safety and quality issues can be described using all three WHO-FIC reference classifications: ICD and ICF describe the health condition or disability arising from an adverse event, and the outcome of interventions to respond to the problem. ICHI describes the interventions themselves. Moreover, acts undertaken to address safety and quality issues will, in many cases, be codable in ICHI, further facilitating discussion and reporting of remediation.

ICHI can also provide a common framework for international efforts to review the effectiveness of health interventions, such as those undertaken by the Cochrane Collaboration.

6. Health System Performance

ICHI provides a classification of what is done by a country's health system. It can be used as an information base for planning, managing, quality assessment and financing of health services, in particular as part of a casemix financing system. It covers not only interventions in hospitals, but also interventions in diverse fields including primary care, assistance with functioning and public health.

In the area of public health, ICHI provides a basis for collecting, reporting and analysing data on population-level health promotion and disease prevention efforts. ICHI has the potential to support the improvement of the quality and availability of information on interventions for public health, and to raise the profile of public health in broader health system policy and planning. In addition, the use of ICHI as a common language for the description of interventions for public health can facilitate communication among diverse public health stakeholders, and thus contribute to knowledge translation and the development of an evidence base for practice.

ICHI Scope and Structure

At the outset it was decided that ICHI, as a statistical classification, would encompass interventions across all components of health systems, in keeping with the broad conception of health represented jointly by the other two WHO-FIC reference classifications, the International Classification of Functioning, Disability and Health (ICF) and the International Classification of Diseases (ICD). ICHI includes medical, surgical, mental health, primary care, allied health, assistance with functioning, rehabilitation and prevention health interventions, and includes a range of interventions for use in community health and public health.

After substantial discussion, a health intervention has been defined as follows:

*A **health intervention** is an act performed for, with or on behalf of a person or a population whose purpose is to assess, improve, maintain, promote or modify health, functioning or health conditions.*

A simple structure, or content model, was put in place, drawing from the European standard for surgical interventions, ISO 1828. The draft of this standard had been applied in developing the French and Canadian classifications of health interventions. ICHI does not include information about the provider of an intervention or the setting where the intervention is performed. The reason(s) for an intervention, and its outcome, should be classified using ICD and ICF, and is not included in ICHI.

Each stem code in ICHI is described in terms of three axes:

- Target - entity on which the Action is carried out
- Action - deed done by an actor to the Target
- Means - processes and methods by which the Action is carried out

Each axis consists of a coded list of descriptive categories. Each stem code is represented by a title and a unique seven-character code denoting the axis categories for that intervention: three characters for the Target, two characters for the Action and two characters for the Means. Each ICHI stem code has a unique combination of categories from the three axes. Not every possible combination of the three axes is represented as an ICHI code. Many stem code titles in ICHI are commonly-used terms, such as 'Cholecystectomy'.

An ICHI stem code includes all necessary elements of the intervention (e.g. laparotomy as an operative approach, suture of abdominal incision after surgery).

Additional information about an intervention can be added as needed using Extension Codes, including codes for therapeutic and assistive products, medicaments, essential pathology tests and telehealth, as well as information such as quantification, laterality, and a more detailed description of anatomy. Additional targets may be specified, using the range of targets available in the Target axis.

In fields such as rehabilitation, mental health and public health, packages or programs of treatment are provided which include several specific ICHI interventions. ICHI includes the capacity to link, or cluster, interventions provided as part of a package or program.

Guidelines for users have been developed to assist in identifying the most appropriate ICHI code to record for a given intervention. The Guidelines also cover the conventions used in ICHI and how extension codes and cluster coding (including packages and programs) can be applied. Cluster coding allows the combination of interventions on a personalised basis.

ICHI now contains more than 8,000 interventions. The number of interventions in ICHI, and consequently the level of detail (granularity) across the classification, has been determined with regard to the use cases for ICHI and the need for stability of the classification over time.

ICHI interventions are grouped into the following four sections, based on intervention target:

- Interventions on Body Systems and Functions (Chapters 1-12)
- Interventions on Activities and Participation Domains (Chapters 13-21)
- Interventions on the Environment (Chapters 22-27)
- Interventions on Health-related Behaviours (Chapter 28)

Guidelines for users

1. Introduction

ICHI is a classification of health interventions. These guidelines are designed to help users select the most appropriate ICHI code/s for a given intervention, and thus support the production of consistently coded data that can be meaningfully interpreted. ICHI Beta-3 is accessed online through the ICHI Platform: <https://icd.who.int/dev11/l-ichi/en#/>

A health intervention is defined as:

An act performed for, with or on behalf of a person or a population whose purpose is to assess, improve, maintain, promote or modify health, functioning or health conditions

Interventions in ICHI are provider-neutral, that is, the same code should be assigned for a specific intervention regardless of who performs the intervention.

In applying ICHI, users must first decide which **stem code** or category of the classification is the most appropriate for describing a given intervention. Each ICHI stem code is described in terms of three axes:

- **Target** - entity on which the Action is carried out
- **Action** - deed done by an actor to the Target
- **Means** - processes and methods by which the Action is carried out

Each axis consists of a coded list of descriptive categories. Each stem code is represented by a title and a unique code denoting the axis categories for that intervention, separated by dots:

- three characters for the Target
- two characters for the Action
- two characters for the Means

For example, Cholecystectomy KCF.JK.AA – the Target KCF is ‘Gall bladder’, Action JK is ‘Excision, total’, and Means AA is ‘Open approach’. Not every possible combination of Target, Action and Means represent an ICHI stem code.

Additional information about an intervention can be added, if needed, using **extension codes**, e.g., quantifiers, additional anatomy, medicaments, assistive and therapeutic products (refer to Section 8 Extension codes).

2. Selecting ICHI stem codes

Each ICHI stem code has a descriptive title. In some cases the wording of the code title reflects the axis categories for that code (e.g., AAA.FA.AE ‘Percutaneous incision of brain’). In other cases the title is a commonly used clinical term (e.g., KCF.JK.AA ‘Cholecystectomy’).

Where the code title is a commonly used clinical term, the ICHI stem code includes all necessary elements of the intervention (e.g. KCF.JK.AA 'Cholecystectomy' includes laparotomy as an operative approach and suture of abdominal incision after surgery). Do not code the elements separately.

A stem code may be assigned for a given intervention if the axis categories for that code are applicable to the intervention, regardless of the wording in the code title. Before selecting a stem code you should check that the Target, Action and Means categories for that code are applicable to the intervention you are coding; if in doubt, refer to the definitions provided for the axis categories.

The following information fields are designed to assist to select the most appropriate stem code.

2.1 Definition

The definition provides a description of the intervention.

2.2 Index terms

Index terms are listed as an additional guide to the content of the stem code. They give examples of terms that should be classified to that specific stem code.

Example 1:

JBB.LG.AD	Endoscopic dilatation of bronchus
Index Terms	Endoscopic dilatation of bronchus
	Endoscopic bronchial dilation

2.3 Inclusions

Inclusions are used to further define or clarify the scope of a stem code and may refer to intervention components that are an inherent part of the intervention, or as examples of the intervention statements to be classified to the stem code. The lists of inclusion terms are by no means exhaustive.

Example 2:

NME.GA.AD	Endometrial ablation
Inclusions	Endometrial ablation by cryoprobe
	Endometrial ablation by electrocautery
	Endometrial ablation by high intensity focused ultrasound
	Endometrial ablation by laser
	Endometrial ablation by microwave
	Endometrial ablation by radiofrequency

NME.GA.AD	Endometrial ablation
	Endometrial ablation by rollerball thermal uterine balloon
	Hysteroscopic endometrial ablation

2.4 Coding note

- Code also if performed: This instruction is used to advise the user that an additional code is to be assigned when certain associated interventions are performed.

Example 3:

JBA.LI.AE	Percutaneous tracheostomy
Inclusions	Percutaneous tracheotomy
	Permanent percutaneous dilatational tracheostomy
	Temporary percutaneous dilatational tracheostomy
Coding note	Code also, if performed, synchronous bronchoscopy (JBB.AE.AD)

- Omit code: This instruction applies to certain interventions which, when performed with or as part of other interventions, should not be coded.

Example 4:

PAK.AE.AA	Exploratory laparotomy
Coding note	Exploration incidental to intra abdominal surgery – omit code

2.5 Exclusions

Certain categories contain lists of conditions preceded by the word ‘Exclusions’ and list specific interventions that are classified elsewhere in ICHI. In some instances exclusions provide more general guidance on types of interventions for which that code should not be used. Exclusions serve as a cross reference in ICHI and help to delimit the boundaries of an intervention code.

Examples 5 and 6:

JAN.JK.AA	Complete laryngectomy
Inclusions	Complete laryngectomy with synchronous tracheostomy
	Complete laryngectomy with thyroidectomy
	Block dissection of larynx
	Laryngopharyngectomy
Exclusions	That with radical neck dissection (JAN.JL.AA)

SSJ.PQ.ZZ	Psychotherapy for engaging in family relationships
Inclusions	Systemic family therapy
Exclusions	Psychotherapy for engaging in intimate relationships (SSM.PQ.ZZ)

3. Conventions used in ICHI

3.1 Abbreviations

NEC Not elsewhere classified

Codes with 'not elsewhere classified' in their title are only to be assigned when a more specific code describing the intervention in question is not present in the classification. This expression is used as a warning to users that certain specified variants of the listed interventions may appear in other parts of the classification.

Example 7:

NME.JK.AA	Total abdominal hysterectomy, not elsewhere classified
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NOS Not otherwise specified

The letters NOS are an abbreviation for 'not otherwise specified', implying that the documentation that is used for classifying the intervention does not provide more detail beyond the term (implying 'unspecified', 'incompletely specified' or 'unqualified').

Example 8:

ABA.JI.AA	Local excision of lesion of spinal cord
Inclusions	Excision of tissue of spinal cord, not otherwise specified

3.2 Use of ‘And’ and ‘Or’ in code titles

The words ‘and’ and ‘or’ in ICHI are generally used in their meaning in formal logic. A term that includes a statement of the kind ‘A and B’ means that both, A and B, have to be present in order to use that category. A term that includes a statement of the kind ‘A or B’ means that either A or B, or both, have to be present in order to use the category. Because A or B can mean either A or B or both, ‘or’ means ‘and/or’. Where a term from ICD-11 or ICF is used in ICHI then the logic of those classifications have been retained.

Example 9:

AXA.DB.AC	Oral or enteral medication for pain
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This intervention should be understood to mean ‘Oral medication for pain, Enteral medication for pain, or both’.

3.3 Parentheses

- **() Parentheses** are used to enclose supplementary words that indicate elements that may be present or absent in the intervention being classified. As well as to enclose the ICHI stem code to which an exclusion term refers.

Example 10:

AS1.PQ.ZZ	Psychotherapy for mental functions
Inclusions	Psychotherapy for simple phobias using exposure to the object
Exclusions	Counselling for mental functions (AS1.PP.ZZ)

3.5 Singular versus multiple

In ICHI, organs, diseases and anatomical sites are expressed using the singular form to represent both singular and multiple, e.g., ‘polyp’ can be interpreted as polyp or polyps.

3.6 Spelling

Throughout ICHI British spelling is used.

4. Choosing which ICHI Target

When selecting an ICHI stem code, you should choose a stem code with the most applicable Target.

4.1. Medical and surgical interventions

For medical and surgical interventions, **anatomy** is the preferred Target:

- If the target is a Body Function domain, and anatomical structures are not being acted upon, then the Target selected should be the Body Function domain.
- If the anatomy is altered (surgically) in any way then anatomy becomes the Target.

Where an intervention concerns several anatomical locations, the Target in the stem code selected should reflect the **deepest location** (within the body or structure) or the **closest to the cephalic extremity**.

For '*Endoscopic excisions of lesions in the oesophagus and duodenum*', assign KBI.JI.AD Endoscopic local excision of lesion of duodenum, as this is the deepest location.

ICHI Target categories vary in granularity and some groups of Targets are hierarchically related (e.g., HAA 'Left cardiac atrium', HAZ 'Atrium, unspecified', and HZZ 'Entire heart, heart or great vessel, unspecified'). In general, a stem code with the most detailed applicable Target category should be used.

If a matching detailed ICHI Target is not available, you should look for a broader Target that encompasses the target of your intervention. For interventions with an anatomical target, residual body system Targets are available, e.g., NZZ 'Urogenital system and functions, unspecified', PZZ 'Unspecified site'. These are located at the end of the list of Targets for each body system. ICHI stem codes with these Targets should only be used when there is insufficient documentation or information to select a more specific ICHI Target, or when an applicable code with a more specific Target is not available.

Other rules concerning choice of Target for medical and surgical interventions include:

- **Control of haemorrhage.** Target should specify the organ which requires the 'control of haemorrhage' rather than the bleeding vessel.
- **Localised pharmacotherapy.** Target should be the specific anatomical site, e.g. for injection of agent into spinal canal, the Target selected is ABG Spinal cavity.
- **Systemic pharmacotherapy** (not aimed at a specific anatomical site). Target should be the whole body (PZA).
- **Interventions on the fetus.** Target should be NMR Fetal or embryonic structure, not the specific anatomical structure on the fetus, e.g., NMR.AD.AD Biopsy of fetal structures. However, if needed, the specific fetal anatomical structure can be identified using an extension code, refer to 8.5 Use of additional target extension code.

4.2. Body Functions, Activities and Participation Domains, and Environmental Factors

The ICHI Target axis includes categories for Body Functions, Activities and Participation Domains and Environmental Factors based on codes from the WHO *International Classification of Functioning, Disability and Health (ICF)*. For further information on ICF see <http://www.who.int/classifications/icf/en/>.

Body Function Targets are grouped with the relevant body system in Section 1 of the classification. Activities and Participation Domain Targets are in Section 2, and Environmental Factor Targets are in Section 3.

ICHI Targets based on ICF codes are hierarchically nested, as the categories are in the ICF itself. The highest level of the ICF hierarchy is Chapter. Chapters are divided into blocks, within which 3-digit and 4-digit codes are nested. Targets based on ICF Chapters are inclusive of all Targets taken from lower levels of the ICF hierarchy, i.e., block and 3-digit ICF codes (very few 4-digit ICF codes are included as ICHI Targets).

ICF chapter-level Target codes consist of two letters followed by the numeral '1'; ICF block-level Target codes consist of two letters followed by the numeral '2'; ICF 3-digit or 4-digit Target codes consist of three letters. The hierarchical structure is illustrated in Table 1.

Table 1: Hierarchical structure of ICHI Targets based on ICF codes

Code	ICHI Target	Level	ICF map
AS1	Mental functions, unspecified	Chapter level	b1
AT2	Global mental functions, not elsewhere classified	Block level	b110–b139
ATC	Awareness and alertness functions	3-digit level	b110
ATD	Orientation functions	3-digit level	b114
AU2	Specific mental functions, not elsewhere classified	Block level	b140–b189
AUA	Attention functions	3-digit level	b140
AUB	Memory functions	3-digit level	b144

The most detailed available Target with the relevant intervention should be used (note that the range of interventions for higher level Targets is greater than for lower level Targets, in line with limiting the size of ICHI).

Example 11:

For an assessment intervention focused solely on memory, code AUB.AA.ZZ

AS1.AA.ZZ Assessment of mental functions
AU2.AA.ZZ Assessment of specific mental functions
AUB.AA.ZZ Assessment of memory

A code with a higher-level Target should be used in the following circumstances:

- where the intervention is directed to multiple lower-level Targets.

Example 12:

For provision of practical support with both housework and meal preparation, code SO2.RB.ZZ

SO2.RB.ZZ Practical support with carrying out household tasks
SOA.RB.ZZ Practical support with preparing meals
SOD.RB.ZZ Practical support with doing house work

- where a code with the required Action is not available for the specific lower-level Target

Example 13:

For a test of thermoregulatory function, assign ET2.AC.ZZ Test of functions of the metabolic and endocrine systems, as there is no 'test' code for Target ETG Thermoregulatory function.

- where there is not enough information available to specify a lower-level Target.

4.3 Choosing between codes with 'Health-related Behaviour' or 'Activities and Participation Domains' Targets

Stem codes with 'Health-related behaviour' Targets (VA1 to VFX) should be assigned when the intervention aims to assess, promote or modify behaviour, at individual or population level, in relation to a particular factor affecting health (alcohol use, hygiene, sexual behaviour, etc).

Stem codes with 'Activities and Participation Domains' Targets (SA1 to SXL) should be assigned when the intervention aims to assess, improve, or maintain a person's performance of (or capacity to perform) particular activities or engagement in particular life situations.

Example 14:

1. an intervention that involves education about healthy food choices and appropriate portion sizes would be classified to:
VEA.PM.ZZ Education to influence eating behaviours
2. an intervention that involves education about the activity of eating (e.g., in the context of rehabilitation after stroke) would be classified to:
SMF.PM.ZZ Education about eating

For interventions concerning products or technologies to assist a person's body functions or their activities or participation, the relevant 'assistive products and technologies' codes should be used, with Targets UAD to UAJ. For interventions concerning products or technologies provided to facilitate behaviour change, codes with the relevant health-related behaviour Target should be used (VA1 to VFX). (The appropriate extension code may be used to describe particular assistive or therapeutic products).

Examples 15 and 16:

- An intervention that involves providing a person with an assistive device for bathing would be classified to:
UAD.RD.ZZ Provision of products and technology for personal use in daily living

- An intervention that involves providing antibacterial hand cleanser to schools to encourage personal hygiene practices among students and teachers would be classified to:
VED.RD.ZZ Provision of products to support improved hygiene behaviours.

4.4 Interventions with more than one Target

Where an intervention has more than one target, and there is no applicable Target category that encompasses the targets of the intervention, you should select a code with an ICHI Target that reflects the **main target** for the intervention.

A second Target code may be recorded using the 'Additional target' extension code or where appropriate an extension code from Specific anatomical detail can be assigned.

For medical and surgical interventions, when there is more than one anatomical site involved:

- the Target in the stem code selected should reflect the main anatomical site of the intervention or the starting point (**from** not to), e.g., ventriculoperitoneal shunt – Target = ventricle
e.g., For 'Ventriculoperitonostomy' assign: AAE.LI.AA Ventricular shunt

Priority rules for selecting the Target for interventions concerning fistulas:

- If female genital tract involved, assign to the specific female genital tract target e.g.: rectovescicovaginal fistula is assigned to the target for 'vagina'.
- If urinary tract involved, the Target is the urinary tract, except when female genital tract is involved.
- Any other fistulae, the Target is the first mentioned site in the clinical term.

Where an intervention concerns more than one Body Function, Activities and Participation Domain, or Environmental Factor target it may be possible to identify a less specific ICHI Target that encompasses the targets of the intervention (see Section 4.2).

Example 17:

For an intervention that targets toileting (SMD) and dressing (SME) a stem code with Target SM1 'Self care' should be selected.

For interventions that aim to influence health-related behaviours, the health-related behaviour may be considered the ultimate target of the intervention. Often the action of the intervention is directed at an immediate target, in order to influence the ultimate target. For example, an awareness raising intervention might seek to change community attitudes (immediate target) in order to influence tobacco use behaviours (ultimate target). In such cases, the ultimate target should be considered the main Target when selecting an ICHI code. Where needed, the immediate target may be recorded using an Additional Target extension code.

5. Choosing which ICHI Action

When selecting an ICHI stem code, choose a code with the most applicable Action. In considering the applicability of a given Action category users should read the definition for that Action. Index terms help to clarify the scope of the category by giving examples of actions covered; note that lists of index terms are not exhaustive:

Examples 18 and 19:

Action	FC
Title	Release
Definition	Freeing a body part that is compressed or unable to function without taking out the body part
Inclusions	Adhesiolysis; Carpal tunnel release; Decompression laminectomy; Interrupting/splitting of tissue for release; Lysis of adhesions

Action	SI
Title	Preparation
Definition	Preparing for an upcoming or future intervention
Inclusions	Modelling Rehearsal Simulation

Action	SI
Exclusions	Planning (TB)

5.1 Multiple Actions

Where an intervention includes more than one action, the user should select an intervention code based on the **main action** or the first one mentioned in the documentation.

Where e.g. a medical or surgical intervention has multiple component actions within the same clinical procedure (and the parts of the intervention can also be done separately), it may be necessary to assign multiple ICHI codes to describe the intervention being performed.

Example 20:

For 'Coronary artery bypass graft (CABG) with mitral valve replacement', assign the following stem codes to describe the interventions performed:

- HIA.LI.AA Coronary artery bypass
- HDF.DN.AA Replacement of mitral valve

Actions undertaken as part of a more comprehensive Action should not be separately coded.

Example 21:

- for 'excision/resection with a reconstruction', an ICHI stem code with Action ML 'Reconstruction' should be selected, because 'excision/resection' is inherent in a reconstruction when performed in the one operative episode.
- for 'incision and drainage', an ICHI intervention code with Action JB 'Drainage' would be selected because the incision is the operative route in order to perform the 'drainage'.
- for 'education which may include training and/or advising', an ICHI stem code with Action PM 'Education' should be selected, because training and/or advising can be considered part of education.

6. Choosing which ICHI Means

When selecting an ICHI stem code the Means identifies ‘the processes and methods by which the Action is carried out’. The Means axis includes the following groups of Means categories:

- Approach
- Technique
- Method
- Sample
- Unspecified

In considering the applicability of a given Means category, users should read the definition for that Means. Index terms help to clarify the scope of the category by giving examples of means covered; note that lists of index terms are not exhaustive.

Examples 22 – 24:

Means	AB
Title	Percutaneous endoscopic
Definition	Endoscopic access, by puncture or minor incision, through the skin and any other body layers necessary to access the site of the intervention
Inclusions	Intraoperative endoscopy Transparietal endoscopic Arthroscopic Laparoscopic
Exclusions	Per orifice endoscopic (AD)

Means	AA
Title	Open approach
Definition	Exposing the actual site of the intervention by incision of the skin or mucous membrane and any other underlying tissue.
Inclusions	Transmastoid
Exclusions	Cutting per orifice (AC)

Means	AE
Title	Percutaneous
Definition	Entry, by puncture or minor incision, with instrumentation through the skin or mucous membrane and any other body layers necessary to reach the site of the intervention
Inclusions	Intramuscular injection Intraosseous injection Intravitreal injection Needle biopsy Subcutaneous (S.C.) injection
Exclusions	Percutaneous endoscopic (AB)
Coding note	Includes that with imaging assistance

6.1 Choice of ‘Approach’ Means categories

‘Approach’ Means categories are only used for medical and surgical interventions.

- ‘Open’ (AA) is the default surgical approach, i.e., where type of approach is not specified in the stem code title this indicates ‘open approach’.
- For medical/surgical interventions the default is to AA Open approach if not otherwise specified.

7. Residual Categories – ‘Other’ and ‘Unspecified’

ICHI coding should always be completed to include the highest level of detail possible with the use of one or multiple stem codes. There are, however, circumstances when that is not possible and for that reason ICHI includes stem codes titled ‘other’ and ‘unspecified’.

In some instances, necessary information to select a specific stem code may not be available in the source documentation. When this is the case, the residual stem code for ‘unspecified’ is selected. Conversely, there are instances where the information in the source documentation is very specific, but ICHI may not include a specific stem code. In this case, users code to the residual category titled ‘other’.

Therefore, where an ICHI stem code with the required combination of Target and Action is not available, a code with the appropriate Target and Action ZY ‘Other action, not elsewhere classified’ should be selected, e.g., KAE.ZY.AC ‘Other interventions on teeth, not elsewhere classified’.

Where there is insufficient information about the action performed, a code with the appropriate Target and Action ZZ ‘Unspecified action’ should be selected, e.g., JZZ.ZZ.ZZ ‘Interventions on respiratory system and voice and speech, unspecified’.

8. What not to code, and order of code assignment

8.1 Intervention Components

Do not code any medical/surgical interventions that are components of another intervention where these components would usually be considered a routine or inherent part of the more significant intervention being performed.

Do not code an intervention that is the operative approach for surgery:

Example 25:

laparotomy performed for a cholecystectomy, assign a stem code for the open cholecystectomy only (KCF.JK.AA).

8.2 Ordering of Codes

Code in the following sequence

1. Interventions to treat the main purpose (health condition, body function impairment, activity limitation or participation restriction, environmental factor or health behaviour)
2. Interventions to treat the additional purpose(s)
3. Interventions to determine the main purpose
4. Interventions to determine the additional purposes
5. Additional code to be recorded in accordance with a 'Code also' instruction

9. Extension codes (use when needed)

Additional information about an intervention can be added by the use of extension codes which expand the detail and granularity of ICHI stem codes.

Extension codes are of the following types:

- Quantifiers
 - Number of anatomical structures an intervention is performed on
 - Number of interventions performed
 - Number of therapeutic products inserted
- Additional descriptive information for interventions
 - Initiating/maintaining/discontinuing/resuming
 - Relationship to other intervention/s
 - Unplanned
 - Standardisation or structure
 - Use of equipment or challenge
 - Enabling factors for behaviour change
 - Client/Recipient
 - Creative therapy

- Specific skills and techniques
- Temporary intervention
- Tissue flaps
- Tissue grafts
- Topology
 - Laterality
 - Measurement
 - Relational
- Telehealth
 - Intervention performed with advice or assistance provided from a distant location
 - Intervention provided to recipient/s in a distant location
 - Interventions delivered via technology, without direct involvement of a human provider
- Essential Pathology Tests
- Supplementary targets
- Specific anatomic detail
- Medicaments
- Assistive products
- Therapeutic products

A given extension code may be used with any ICHI stem code to which it is applicable.

The ICHI stem code is to be reported first followed by an ampersand ‘&’ followed by the extension code/s. Multiple extension codes are to be separated by ‘&’.

Syntax: ICHI intervention stem code&extension code&extension code.

Example 26:

For ‘*Unplanned menisceplasty of knee, right side*’, assign:
MMD.ML.AA&XB03.0&XCA4

Where:

Stem code – MMD.ML.AA Menisceplasty of knee
 Additional descriptive information extension code – XB03.0 Unplanned intervention
 Topology extension code for laterality – XCA4 Right

Further information on the use of specific extension codes is provided below.

9.1 Quantifiers

These extension codes are assigned to identify the number of:

- anatomical structures an intervention is performed on
- the same interventions performed in one episode of care
- therapeutic products inserted or implanted during an intervention

9.2 Additional descriptive information

Additional descriptive information can be added to an ICHI stem code using extension codes XB01 – XB14.

Specific guidelines for the application of certain extension codes in this section are provided below:

9.2.1 Use of ‘XB07 Enabling factors for behaviour change’ extension codes

Behaviour change interventions often address factors that influence the behavioural choices people make. This extension code can be used to record additional information concerning the mechanism by which the intervention is intended to bring about change in a health-related behaviour, that is, to describe how the intervention is intended to work, refer to examples in Table 2.

The categories of this extension code are based on the ‘Sources of behaviour’ component of the ‘Behaviour change wheel’, developed by Michie and colleagues^[12].

Table 2: Examples illustrating use of XB07 Enabling factors for behaviour change:

Extension code	Examples
<p>XB07.0 Capability Intervention addressing the psychological and physical capacity required to engage in a behaviour</p>	<p>Education campaign to improve community understanding of immunisation: VDA.PM.ZZ&XB07.0 Education to influence immunisation behaviours</p> <p>Cooking classes to develop meal preparation skills: VEA.PH.ZZ&XB07.0 Training to influence eating behaviours</p>
<p>XB07.1 – Opportunity Intervention addressing the social or physical factors that affect how easy or difficult it is to engage in a behaviour</p>	<p>Workplace policy to encourage and support breastfeeding: VEH.WJ.ZZ&XB07.1 Policy change concerning breastfeeding behaviours</p> <p>Provision of workplace safety equipment: VCB.RD.ZZ&XB07.1 Provision of products or services to support improved workplace safety behaviours</p>
<p>XB07.2 – Motivation Intervention addressing the automatic or reflective mental processes that energise and direct behaviour</p>	<p>Peer support program to help problem gamblers: VAE.RE.ZZ&XB07.2 Provision of peer support for gambling behaviours</p> <p>Media campaign to change community attitudes towards domestic violence; VBB.PM.ZZ&XB07.2 Education to influence family and partner violence behaviours</p>

9.3 Use of ‘Telehealth’ extension codes

XH01 – Intervention performed with advice or assistance provided from a distant location

Includes: performing intervention with advice provided from a distant location; performing intervention with assistance provided via robotic control from a distant location

XH02 – Intervention provided to recipient/s in a distant location

Includes: providing intervention directly to a person at a distant location (e.g., telephone counselling); performing intervention via robotic control; advising or assisting local provider to perform intervention

XH03 – Interventions delivered via technology, without direct involvement of a human provider

Includes: asynchronous eHealth and mHealth interventions, and interventions delivered via websites and health care apps.

Extension code XH01 should be recorded at the health care facility where the individual receiving the intervention is located, not where the distant provider is located.

Extension code XH02 should be recorded at the health care facility where the provider is located, not the location of the distant individual who is receiving the intervention.

Where an intervention is provided to a recipient(s) in a distant location, and there is a health care provider co-located with the recipient(s) who is also involved in provision of the intervention, the intervention may be recorded at both locations (e.g., two different hospitals). In such a case extension code XH02 *must* be used at the location that is distant from the recipient. This provides a mechanism to prevent double counting of the intervention when information across locations is aggregated.

Table 3: Examples illustrating the use of Telehealth extension codes:

	Coding at recipient's location	At location distant from recipient
A specialist giving advice to a doctor at a distant location who is performing an intervention (e.g., thrombolysis)	IAA.DB.AF&XH01	IAA.DB.AF&XH02
Provision of tobacco cessation counselling via telephone	–	VAB.PP.ZZ&XH02
Doctor at hospital A conducts a series of mental function tests and sends results to neurologist at hospital B who uses the test results to conduct a neurological assessment	AS1.AC.ZZ	AZZ.AA.AH&XH02

Extension code XH03 may be used for describing population-level interventions for public health or interventions provided to individuals:

Examples 27 and 28:

- An interactive website providing tailored advice on smoking cessation:
VAB.PN.ZZ&XH03 – Advising about tobacco use behaviours, delivered via technology without direct involvement of a human provider

- Individual use of an app to assist with memory functions:
AUB.RB.ZZ&XH03 – Practical support with memory, delivered via technology without direct involvement of a human provider

9.4 Essential Pathology Tests

The Essential Pathology Tests extension comprises the pathology tests included by the WHO in its Model List of Essential In-Vitro Diagnostics 2019. This extension code may be used to record a pathology test performed on a specimen.

Example 29:

Blood specimen taken for diagnostic testing of haemoglobin levels:
PZX.AH.XA&XJ33

Where:

Stem code – PZX.AH.XA Specimen collection, blood
Essential pathology test extension – XJ33 Haemoglobin (Hb)

LOINC may be used as an alternative to this extension code if the user has access to it.

9.5 Use of ‘Additional target’ extension codes

Additional target extension code may be used to record an additional ICHI Target category when more than one target is referred to in the description of the intervention. The extension code is the relevant Target code preceded by XX.

If an additional target with sufficient detail is not available, a Specific Anatomic Detail extension code may be assigned, see section 9.6.

Examples 30 – 33:

The intervention statement involves more than one anatomical target, e.g.:
For ‘*Ventriculoperitonostomy*’, assign:
AAE.LI.AA&XXKMA

Where:

Stem code – AAE.LI.AA Ventricular shunt
Additional target extension – XXKMA Peritoneum

For ‘*Coronary artery bypass graft (CABG) from thoracic aorta to coronary artery*’, assign:

HIA.LI.AA&XXHIG&XXHIA

Where:

Stem code – HIA.LI.AA Coronary artery bypass
Additional target extensions – XXHIG Aorta, thoracic & XXHIA Coronary artery

Where a code with the required Action is not available for a specific Target, e.g.:
For ‘*Test of thermoregulatory function*’, assign:

ET2.AC.ZZ&XXETG

Where:

Stem code – ET2.AC.ZZ Test of functions of the metabolic and endocrine systems
Additional target extension - XXETG Thermoregulatory function

To indicate that the application or prescription of a pharmaceutical is in relation to a specific target, an ‘Additional Target’ extension, e.g. XXKCA liver, may be used with the following codes to indicate where the pharmacotherapy is administered:

PZA.DB.AC Administering pharmacotherapy, per orifice
PZA.DB.AD Administering pharmacotherapy, per orifice endoscopic
PZA.DB.AE Administering pharmacotherapy, percutaneous
PZA.DB.AF Administering pharmacotherapy, percutaneous transluminal
PZA.DB.AH Topical application of pharmacotherapy
PZA.DB.AZ Administering pharmacotherapy, not elsewhere classified

9.6 Use of ‘Specific Anatomic Detail’ extension codes

The following steps should be followed when deciding on whether an ‘additional target’ or ‘specific anatomic detail’ extension code is to be assigned to provide further anatomical detail to an existing stem code:

Step 1: Firstly, check additional target extension code and assign if one exists

Step 2: Then, if an additional target is not available, assign an extension code from Specific Anatomic Detail.

Example 34:

To record further detailed anatomy not covered by an additional target category, an extension code from 'Specific Anatomic Detail' may be assigned:

For '*Reconstruction of the volar intercarpal ligaments of the hand*', assign:
MGL.ML.AA&XA47N4

Where:

Stem code – MGL.ML.AA Reconstruction of ligament and fascia of hand or finger
Additional anatomy extension – XA47N4 Volar intercarpal ligaments

ICHI includes the same list of Specific Anatomic Detail as ICD-11, and the lists will be maintained together.

9.7 Use of 'Medicaments' extension codes

Where an intervention includes use of a medicament, the substance may be described using a Medicament extension code.

Example 35:

Medical induction of labour with Oxytocin
NME.SH.AE&XM9SN0

Where:

Stem code – NME.SH.AF Intravenous medical induction of labour
Medicament extension – XM9SN0 Oxytocin (synthetic)

ICHI includes the same list of Medicament codes as in ICD-11, and the lists will be maintained together.

9.8 Use of 'Assistive products' extension codes

To record further information regarding an assistive product in association with an intervention, an extension code from 'Assistive products' may be assigned.

Example 36:

For '*Provision of digital hearing aids*', assign
UAF.RD.ZZ&XP305.01

Where:

Stem code – UAF.RD.ZZ Provision of products and technology for communication
Assistive products extension – XP305.01 Hearing aids (digital) and batteries

ISO 9999 may be used as an alternative to this extension code if the user has access to it.

9.9 Use of 'Therapeutic products' extension codes

To record further information regarding a therapeutic product in association with an intervention, an extension code from 'Therapeutic products' may be assigned.

Example 37:

For '*Insertion of bone anchoring conduction hearing device*', assign:
CBA.DN.AC& XT03.02

Where:

Stem code – CBA.DN.AC Implantation of internal device in middle ear, not elsewhere classified

Therapeutic products extension – XT03.02 Bone anchoring system

9.10 Combining extension codes

Logically combined extensions should be grouped using round brackets (), with multiple use of these brackets being used to group 'groups' of extension codes.

Syntax: ICHI stem code&(extension code&extension code)&(extension&extension code)

Example 38:

For '*Coronary artery bypass graft (CABG) to left diagonal coronary artery and right circumflex coronary artery*', assign:

HIA.LI.AA&(XCA3&XA2DD2)&(XCA4&XA4YJ3)

Where:

Stem code – HIA.LI.AA Coronary artery bypass is combined with:

Topology extension – XCA3 Left

Additional anatomy extension – XA2DD2 Diagonal artery

and

Topology extension – XCA4 Right

Additional anatomy extension – XA4YJ3 Circumflex artery

10. Other Code Lists

Other code lists may be used alongside ICHI. These could be international coding systems to provide more detail (e.g. LOINC), or a code list to specify other information about the intervention including International Standard Industrial Classification (ISIC) code to describe industry, Central Product Classification (CPC) to describe products and services.

Codes from other code lists should be separated from ICHI codes by the hash (#) symbol.

11. Interventions performed together

Where interventions are performed together, the ICHI codes for each intervention should be separated by a forward slash “/”. Each intervention should be coded using the relevant stem code and extension codes as needed.

Some medical/surgical interventions performed together are commonly described by a single term.

Example 39:

For ‘*Partial oesophagectomy with gastrostomy*’, as per the ‘code also’ instruction assign:

KBA.JJ.AA/KBF.LI.AA

Where:

KBA.JJ.AA Partial oesophagectomy

KBF.LI.AA Gastric bypass

Example 40:

For ‘*Training in eating and drinking*’, assign:

SMF.PH.ZZ/SMG.PH.ZZ

Where:

SMF.PH.ZZ Training in eating

SMG.PH.ZZ Training in drinking

Example 41:

For '*Percutaneous transluminal angioplasty of left lower leg artery and percutaneous transluminal angioplasty of right lower leg artery with insertion of two stents*', assign:
IFA.LG.AF&XCA3/IFA.LH.AF&XCA4&XAC2&XT01.24

Where:

Stem code – IFA.LG.AF Percutaneous transluminal angioplasty of artery of lower limb

Topology extension – XCA3 Left

Stem code - IFA.LH.AF Dilatation with insertion of stent of artery of lower limb

Topology extension – XCA4 Right

Quantifier number of products – XAC2 Two therapeutic products inserted

Therapeutic product extension – XT01.24 Endovascular stent

Example 42:

For '*Assisting and leading skills for mobility of hand and finger joints and exercises for muscles of the hand*', assign:

MTB.PG.ZZ&XB11.5&XXMGJ/MUB.PG.ZZ&XB11.3&XXMGM

Where:

Stem code – MTB.PG.ZZ Assisting and leading exercise for mobility of joint functions

Additional descriptive extension – XB11.5 Movement techniques

Additional target extension – XXMGJ Joint of hand and fingers

Stem code – MUB.PG.ZZ Assisting and leading exercise for muscle power functions

Additional descriptive extension – XB11.3 Strength techniques

Additional target extension – XXMGM Muscle of hand

For interventions covering public health, the above rules may be used where necessary to fully convey the content of an intervention that cannot be adequately captured using a single ICHI stem code.

Example 43:

For '*Educational theatre performance about alcohol and illicit drug use*', (a health promotion intervention), assign:

VAA.PM.ZZ/VAC.PM.ZZ

Where:

VAA.PM.ZZ Education to influence alcohol use behaviours

VAC.PM. ZZ Education to influence illicit drug use behaviours

Two or more independent interventions provided on the same date, or on different dates, should not be reported as interventions performed together.

12. Packages of interventions

In some circumstances several interventions may be combined as a package. A rehabilitation program may be constructed for a person to include a selection of interventions, to be provided by a range of providers and disciplines over a time period. A mental health treatment program may be similarly constructed.

Public health programs will commonly include a range of component interventions, each of which can be coded in ICHI.

Packages of interventions are reported using '+' between interventions. Each intervention is represented by a stem code with or without extension codes.

Example 44:

Rehabilitation program for a hand injury, assign:
MTB.PG.ZZ&XB11.5&XXMGJ+MUB.PG.ZZ&XB11.3&XXMGM+SIA.PN.ZZ&XB12.0+SIG.PH.ZZ

Assisting and leading movement skills exercise for mobility of joint functions; hand and fingers' AND 'Assisting and leading strength exercise for muscle power functions; hand' AND 'Ergonomics advising for lifting and carrying AND Training in fine hand use'

Example 445

A school-based health promotion initiative to improve sun protection behaviours of students that involves (i) erecting shade structures in the playground, (ii) providing students with hats, and (iii) running an education session for parents, assign:
VEG.TM.ZZ&XB09.2+VEG.RD.ZZ&XB09.0+VEG.PM.ZZ&XB09.1

Environment modification to influence UV radiation exposure behaviours; system level: 'organisation' AND 'Provision of products or services to support improved UV radiation exposure behaviours'; system level: 'individual' AND 'Education to influence UV radiation exposure behaviours'; system level: 'close interpersonal'.

13. Using ICHI with ICD and/or ICF

As a reference classification of the WHO Family of International Classifications (WHO-FIC), ICHI has been designed to align with, and to be used alongside, the ICD and ICF. ICF categories for Body Functions, Activities and Participation Domains, and Environmental Factors are used as Targets in ICHI (see Section 4.2, above). Several ICHI extension codes (e.g., medicaments, specific anatomical detail) are ICD-11 extension codes.

In applying the three WHO-FIC classifications together:

- ICHI can be used to describe investigative, preventive, therapeutic and support intervention(s).

- ICF can be used to describe the person’s functioning (body functions, body structures, activities and participation domains and environmental factors).
- ICD-11 can be used to record the person’s health conditions.

The three coding systems are used independently.

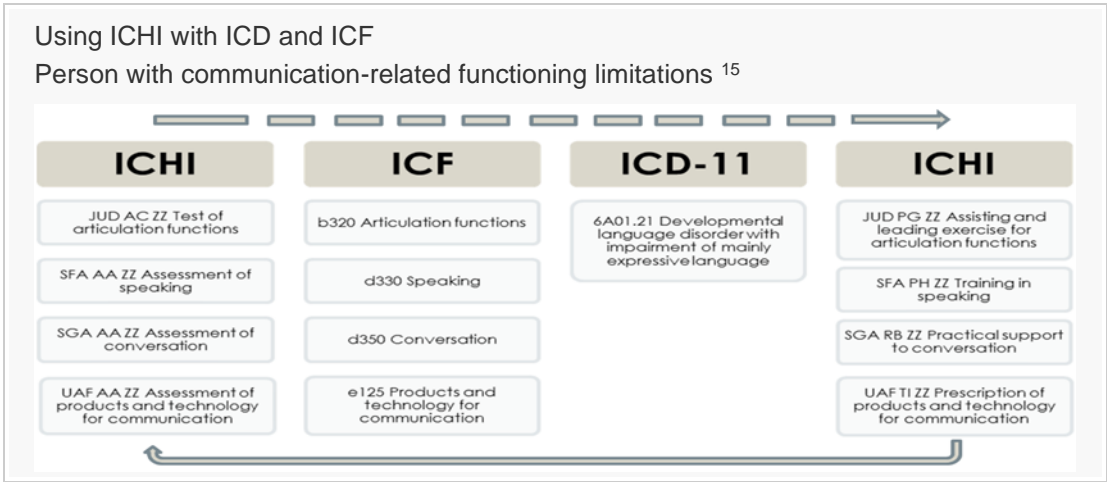
ICF can also be used to document functioning-related goals agreed with the person, and any needs for assistance. In this context, ICHI may be used to record planned or performed therapeutic or supportive interventions to achieve the person’s goal(s). Then the person’s functioning before and after the intervention(s), recorded using ICF, can be compared to determine whether functioning-related goals have been achieved.

Example 46:

Using ICHI with ICD:
 Person with Crohn disease of the large intestine admitted for hemicolectomy of ascending colon, assign:

ICD-11 DD70.3 (Crohn disease of large intestine)
ICHI KBP.JJ.AA&XA3AL5 (Partial excision of colon&Ascending colon)

Example 47:



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