



ICD-11 Healthcare Related Harms

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Purpose

- Use coded data on harms to:
 - report on quality of care and patient safety
 - In-hospital mortality
 - Adverse event rates for various conditions
 - Patient safety indicators
- Stakeholders who use data:
 - Ministries of health, health insurance companies, private health systems, quality councils, hospital administrators, clinical leaders/ groups, public advocacy organizations
- Conditions required
 - Need person level data from hospitalizations
 - Can be linked to provider/ organization
 - Related conditions and procedures
 - Related outcomes (e.g. mortality, length of stay, adverse outcomes)

Quality & Safety Output Reports

- Provide dimensions on health system quality
 - Global information on system performance or
 - Comparative information broken down by provider unit
 - Physician level
 - Hospital level
 - Regional reporting
- Ideal functionality for reporting
 - Use of validated patient safety indicators (consistently measures what it is supposed to measure)
 - Uniformity of data form
 - Appropriate risk adjustment (controlling for factors that might affect the rates, like age)

Conceptual Model

- Exposure to health care events can sometimes have unintended consequences
- Intent important
- Three components
 - Harm to the patient what were the consequence for the person's health?
 - Cause or source of harm what caused the harm?
 - Mode or mechanism of harm in what way? How did the source of harm actually produce harm?

Key Feature for Quality & Safety Codes in ICD-11

- A cluster of codes is required to represent a case
- Like "code also" in prior versions of ICD
- Cluster term is new and extent of requirements for clustering
- Three components required harm/ cause/ mode

Harm

 Any condition code, or standard diagnosis code in ICD-11 (e.g. coma, hypoglycemia, burn, fracture)

or

 From Injury Chapter 22 under Injury or harm arising from surgical or medical care, not elsewhere classified

External Causes – Chapter 23

- 4 Types of causes related to harms
- 1. Substances (drugs and medicaments, etc.)
- 2. Procedures
- 3. Devices
- 4. A mixed bag of other types (e.g. problems associated with transfusions, problems associated with diagnosis including missed diagnosis or incorrect diagnoses, etc.)

Mode

 Quality & safety modes are related to the types of causes

	Examples of corresponding quality and safety mode or mechanism with cause
Cause or source of harm	Mode or mechanism
Substance	Overdose, under dose, wrong substance.
Procedure	Accidental perforation of organ during procedure.
Device	Dislodgement. Malfunction.
Other cause	Mismatched blood. Patient dropped during transfer from OR table.

Injury

- Key Message Was there an injury, illness, disability that resulted from a medical or surgical intervention and that occurred during an episode of care that prolonged hospital stay or death?
 - Was there an intervention? (e.g. sutured up a laceration)
 - Was there a new or amended course of treatment? (needed home care for 6 weeks of IV antibiotics after in-hospital infection)
 - Was there a consult as a consequence of the injury?
 - Was there a longer than typical length of stay related to the harm?



Classification of hospital-related harm/injury in ICD-10-CA

- Chapter XX External causes of morbidity and mortality (V01-Y98)
 - Complications of medical and surgical care (Y40-Y84)
 - Inclusions:
 - complications of medical devices
 - correct drug properly administered in therapeutic or prophylactic dosage as the cause of any adverse effect
 - misadventures to patients during surgical and medical care
 - surgical and medical procedures as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
 - Exclusions: accidental overdose of drug or wrong drug given or taken in error (<u>X40-X44</u>)



Injury/Harm - Chapter 22 ICD-11

- Injury or harm arising from surgical or medical care, not elsewhere classified
 - NE80 Injury or harm arising following infusion, transfusion or therapeutic injection
 - NE81 Injury or harm arising from a procedure, not elsewhere classified
 - NE82 Pacemaker or implantable cardioverter defibrillator or lead dysfunction or complication
 - NE83 Injury or harm arising from other device, implant or graft, not elsewhere classified NE84 Failure or rejection of transplanted organs or tissues
 - NE85 Complications peculiar to reattachment or amputation NE86 Malignant hyperthermia due to anaesthesia NE87 Failed or difficult intubation NE88 Drug toxicity associated with harm in surgical or medical care, not elsewhere classified



Injury/Harm - Chapter 22 ICD-11 cont.

- Injury or harm arising from surgical or medical care, not elsewhere classified
 - NE80 Injury or harm arising following infusion, transfusion or therapeutic injection
 - NE80.0 Air embolism following infusion,
 - transfusion or therapeutic injection
 - NE80.1 ABO incompatibility reaction
 - NE80.2 Rh incompatibility reaction
 - NE80.3 Other serum reactions
 - **NE80.Y** Other specified injury or harm arising following infusion, transfusion or therapeutic injection
 - **NE80.Z** Injury or harm arising following infusion, transfusion or therapeutic injection, unspecified



Injury/Harm – Chapter 22 ICD-11

- Injury or harm arising from surgical or medical care, not elsewhere classified
 - NE80 Injury or harm arising following infusion, transfusion or therapeutic injection
 - NE81 Injury or harm arising from a procedure, not elsewhere classified
 - NE81.0 Haemorrhage or haematoma complicating a procedure, not elsewhere classified

NE81.00 Haematoma of surgical wound of skin

NE81.01 Haemorrhage and haematoma of eye or ocular adnexa complicating a procedure

NE81.0Y Haemorrhage or haematoma of other specified site complicating a procedure, not elsewhere classified NE81.0Z Haemorrhage or haematoma of unspecified site complicating a procedure, not elsewhere classified

NE81.1 Disruption of operation wound, not elsewhere classified

NE81.2 Surgical site infection
 NE81.20 Superficial incisional site infection
 NE81.21 Deep incisional site infection

Causes of healthcare related harm or injury

 Cause – the general mechanism that precipitated the injury



What is the cause of the harm?

- Cause categories
 - Surgical or other medical procedures associated with injury or harm in diagnostic or therapeutic use
 - Surgical or other medical devices, implants or grafts associated with injury or harm in therapeutic use
 - Substances associated with injury or harm in therapeutic use PL30 Other health care related causes of injury or harm

Source: ICD-11 for Mortality and Morbidity Statistics Beta Draft last update 7-Apr-2018

What is the cause of the harm?

- Specify drug or biological substance associated with injury or harm. (PL20 Post-coordination)
- Substances associated with injury or harm in therapeutic use
 - PL20 Drugs, medicaments or biological substances associated with injury or harm in therapeutic use
 - PL21 Complementary or traditional medicines associated with injury or harm in therapeutic use

PL2Z Substances associated with injury or harm in therapeutic use, unspecified

Medication

Medication

- Analgesics, antipyretics and anti-inflammatory drugs
- Antiepileptics and antiparkinsonism drugs
- Antipsychotics [neuroleptics]
- Cannabinoids & hallucinogens
- Other drugs
- Sedative hypnotic drugs & other CNS depressants
- Antidepressants
- Opioids
- Psychostimulants





What is the cause?

- Examples of surgical or medical procedures associated with injury or harm (PL00.0-9, PL00.A,B,C)
 - Neurological procedure
 - Cardiac procedure
 - Thoracic procedure
 - Gastrointestinal procedure
 - Endocrine procedure
 - Gynaecological procedure
 - Urological procedure
 - Obstetric procedure
 - Orthopaedic procedure
 - Vascular procedure
 - Ear, nose, oral or throat procedure

- Surgical or other medical procedures associated with injury or harm in diagnostic or therapeutic use
- Surgical or other medical devices, implants or grafts associated with injury or harm in therapeutic use
- Substances associated with injury or harm in therapeutic use PL30 Other health care related causes of injury or harm





What is the cause?

- Examples of surgical or medical devices associated with injury or harm (PL10-19, PL1A-1C)
 - Anaesthesiology devices
 - Cardiovascular devices
 - Otorhinolaryngological devices
 - Gastroenterology and urology devices
 - General hospital and personal use devices
 - Neurological devices
 - Obstetric and gynaecological devices
 - Ophthalmic devices
 - Radiological devices
 - Orthopaedic devices
 - Physical medicine devices
 - General and plastic surgery devices
 - Other and unspecified medical device, describe

- Surgical or other medical procedures associated with injury or harm in diagnostic or therapeutic
- Surgical or other medical devices, implants or grafts associated with injury or harm in therapeutic use
- Substances associated with injury or harm in therapeutic use PL30 Other health care related causes of injury or harm



Source: ICD-11 for Mortality and Morbidity Statistics Beta Draft last update 7-Apr-2018



Modes of healthcare related harm or injury

- Mode how the injury occurred
 - Always code MODE of the injury or harm and the CAUSE of the injury or harm
 - Mode should always match the same cause category
 - PL31 Mode of injury or harm associated with a surgical or other medical procedure
 - PL32 Mode of injury or harm associated with a surgical or other medical device, implant or graft
 - PL33 Mode of injury or harm associated with exposure to a drug, medicament or biological substance
 - PL34 Mode of injury or harm associated with other health care related causes



Mode – surgical or medical procedure examples

- PL31 Mode of injury or harm associated with a surgical or other medical procedure
 - PL31.0 Cut, puncture or tear as mode of injury or harm
 - PL31.1 Burn arising during procedure, as mode of injury or harm
 - PL31.2 Embolisation, as mode of injury or harm PL31.3 Foreign body accidentally left in body, as mode of injury or harm
 - PL31.4 Failure of sterile precautions as mode of injury or harm
 - PL31.5 Procedure undertaken at wrong site or wrong side, as mode of injury or harm
 - PL31.6 Pressure, as mode of injury or harm
 - **PL31.Y** Other specified mode of injury or harm associated with a surgical or other medical procedure
 - PL31.Z Unspecified mode of injury or harm associated with a surgical or other medical procedure



Mode of injury or harm was associated with a drug or biological substance examples

 PL33 Mode of injury or harm associated with exposure to a drug, medicament or biological substance

> PL33.0 Overdose of substance, as mode of injury or harm

PL33.1 Underdosing, as mode of injury or harm

PL33.2 Drug-related injury or harm in context of correct administration or dosage, as mode of injury or harm

PL33.3 Incorrect substance, as mode of injury or harm

PL33.4 Incorrect route of administration, as mode of injury or harm

PL33.5 Incorrect duration of administration or course of therapy, as mode of injury or harm PL33.6 Medication or substance that is known to be an allergen, as mode of injury or harm PL33.7 Medication or substance that is known



Mode of injury or harm associated with a surgical or medical device examples

 PL32 Mode of injury or harm associated with a surgical or other medical device, implant or graft

PL32.0 Structural device failure, as mode of injury or harm

PL32.1 Functional device failure, as mode of injury or harm

PL32.2 Perforation or protrusion by device, as mode of injury or harm

PL32.3 Obstruction of device, as mode of injury or harm

PL32.4 Dislodgement, misconnection or deattachment, as mode of injury or harm

PL32.5 Operator error, as mode of injury or

harm

PL32.6 Combination or interaction of operator error and device failure, as mode of injury or harm





Mode of injury or harm associated with other health care related causes examples

 PL34 Mode of injury or harm associated with other health care related causes

PL34.0 Non-administration of necessary drug

PL34.1 Non provision of necessary procedure

PL34.2 Problem associated with physical

transfer of patient

PL34.3 Mismatched blood used in transfusion

PL34.4 Other problem associated with

transfusion

PL34.5 Problem associated with physical

restraints

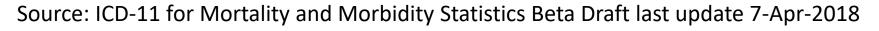
PL34.6 Problem associated with isolation

protocol

PL34.7 Problem associated with clinical

documentation

PL34.8 Problem associated with clinical software







Coding instructions

- Code harms like other conditions, using Chain or String Sequential Cluster Coding Style
- If a harm occurred
 - Typically assign stem code (injury) / followed by the cause/ then the mode
- Format coding in each field that involves clustered diagnoses as follows:

Stem code (harm/injury) / cause/ mode & description if any

code 1 / code 2 / code 3 & code 4 x codes

Additional extension code(s), if applicable (Chapter 26/x)





Example #1



Patient with type 2 diabetes mellitus was admitted to hospital with renal failure, hyperkalaemia, and acidosis following overdose with angiotensin-converting enzyme (ACE) inhibitor that was prescribed by a doctor and taken correctly.

Stem Codes:

Harm: GB6Z Kidney failure, unspecified

Harm: 5C56 Hyperkalaemia

Harm: 5C53.Z Acidosis, unspecified

Co-morbidity: 5A11 Type 2 diabetes mellitus

Chapter 23 codes:

Mode: PL20 Drugs, medicaments or biological substances associated with injury or

harm in therapeutic use

Cause: PL33.2 Drug-related injury or harm in context of correct administration or

dosage, as mode of injury or harm

Extension Code: XM72L5 Inhibitor angiotensin-converting enzyme

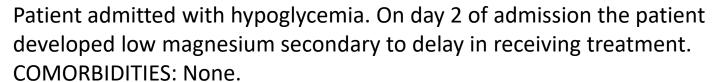


Example #1

This case could be coded as:

- Field1: GB6Z/5C56/5C53.Z/PL20/PL33.2&XM72L5
- Field 2: 5A11

Harm Example #2



Stem Codes:

Stem Code: 5A41 Hypoglycaemia without associated diabetes

Harm: 5C44.41 Hypomagnesaemia

Chapter 23 codes:

Cause: PL20 Drugs, medicaments or biological substances associated with injury

or harm in therapeutic use

Mode: PL34.B Problem associated with delayed treatment

Extension codes:

XM7L15 Sodium magnesium citrate

This case could be coded as:

Field 1: 5A41

Field 2: 5C44.41/PL20/PL34.B&XM7L15

Source: Field Trial Documentation - DS



Chapter 23 Coding Exercises Exercise 1

A patient was admitted from home unconscious due to an accidental overdose of codeine (took two doses by mistake).



A patient was admitted from home unconscious due to an accidental overdose of prescribed codeine (took two doses by mistake).

Harm: MB20.1 Coma

Cause: PL20 Drugs, medicaments or biological substances associated with

injury or harm in therapeutic use

Mode: PL33.0 Overdose of substance, as mode of injury or harm

Extension Code: XM4587 Codeine **Place of occurrence:** XE266 Home

Field 1: MB20.1/PL20/PL33.0&XM4587&XE266

A patient was admitted with epistaxis. She was on warfarin long term for atrial fibrillation. Her international normalized ratio (INR) was found to be supra-therapeutic, and the cause of the bleed was determined to be warfarin toxicity.



A patient was admitted with epistaxis. She was on warfarin long term for atrial fibrillation. Her international normalized ratio (INR) was found to be supra-therapeutic, and the cause of the bleed was determined to be warfarin toxicity.

Harm: MD30 Epistaxis

Cause: PL20 Drugs, medicaments or biological substances associated with injury or

harm in therapeutic use

Mode: PL33.0 Overdose of substance, as mode of injury or harm

Extension code: XM86W0 Warfarin

Field 1: MD30/PL20&XM86W0/PL33.0

A patient was admitted for osteoarthritis and underwent an elective total left hip replacement. On post-operative day 3, the wound was infected. Intravenous (IV) antibiotics were commenced and the length of stay was prolonged by 5 more days.



A patient was admitted for osteoarthritis and underwent an elective total left hip replacement. On post-operative day 3, the wound was infected. Intravenous (IV) antibiotics were commenced and the length of stay was prolonged by 5 more days.

Field 1: FA00.Z Osteoarthritis of hip, unspecified&XK8G Left

Harm: NE81.2Z Surgical site infection, unspecified

Cause: PL00.8Z Musculoskeletal procedure associated with injury or harm in

therapeutic use, unspecified approach

Mode: PL31.Z Unspecified mode of injury or harm associated with a surgical or

other medical procedure

Extension code: XY69 Developed after admission

Field 2: NE81.2Z/PL00.8Z/PL31.Z&XY69

A patient was admitted for an exploratory laparotomy for abdominal pain post-appendectomy. A surgical sponge was found in the abdominal cavity.



A patient was admitted for an exploratory laparotomy for abdominal pain post-appendectomy. A surgical sponge was found in the abdominal cavity.

Harm: MD91.Z Abdominal or pelvic pain, unspecified

Cause: PL00.3Z Gastrointestinal, abdominal, or abdominal wall procedure associated with injury or harm in therapeutic use, unspecified approach

Mode: PL31.3 Foreign body accidentally left in body, as mode of injury or harm

Field 1: MD91.Z/PL00.3Z/ PL31.3



Summary

- ICD-11 has added layers for coding healthcare related harms
 - Injury/ harm as stem code
 - Cause
 - Mode
- Challenge definition of harm
- Level of detail injury, (consider intent), mode and cause required
- Practice cases