The ICD–10 Classifications of Injuries and External Causes

by A.C.P. L'Hours

Introduction

The Tenth Revision of the ICD[1] published in 1992 is the most radical since the Sixth Revision in 1948 and in many respects represents a new classification rather than an updating of the previous revision that has been in use since 1977.

The adoption of an alphanumeric coding scheme of one letter and two numbers at the three–character level with decimal subdivisions at the fourth character has almost doubled the size of the coding frame as compared to ICD–9. This has enabled new categories to be created for a number of entities with the fourth character being used for enhanced clinical and other detail.

Chapters XIX, Injury, poisoning and certain other consequences of external causes (using the letters S and T) and XX, External causes of morbidity and mortality (using the letters V, W, X and Y) have perhaps undergone the most change of all the 21 chapters of ICD–10 and both bring new taxonomic approaches that will result in easier and more accurate coding as well as facilitating the analysis and interpretation of the coded data.

In drafting these two chapters, a conscious effort was made to maintain a clear distinction between the event itself (the external cause) and the effect on the individual (the injury or other consequence). This was achieved by avoiding terminology related to the trauma in the external cause chapter and descriptions of the event in the injury chapter. There are however terms, such as drowning and electrocution, that are used to describe the cause as well as effect and these are used in both chapters.

The expression certain other consequences of external causes has been used in the title of chapter XIX. Some other consequences such as drug–induced and radiation–related disorders are included in other chapters, while other longer term consequences are better classified by the International Classification of Impairments, Disabilities, and Handicaps (ICIDH).[2]

The view has been expressed that these two chapters could usefully serve as the basis for the development of an adaptation of ICD–10 for injury prevention.

The Revision Process

The broad lines of the Tenth Revision of the ICD were set at the Preparatory Meeting on ICD–10 held at the Headquarters of the World Health Organization (WHO) in Geneva, Switzerland from 12 to 16 September 1983.[3]

The meeting recommended an alphanumeric coding scheme for ICD–10 of one letter and two numbers at the three–character level with numeric subdivisions where necessary to form the fourth–character level. The full range of codes therefore runs from A00.0 to Z99.9.

The first Expert Committee on ICD–10[4] met in San Francisco in June 1984 and the first draft proposal for ICD–10[5] containing only the three–character codes and titles was circulated to WHO Member States, Nongovernmental Organizations in official relations with WHO, WHO Collaborating Centres for Classification of Diseases, and other interested groups and individuals in August 1984. Comments were requested by the end of January 1985.

The second draft proposal for ICD–10[6] containing both the three– and four–character codes and titles was circulated, on the same basis as the first draft, in August 1986 and comments were requested by 15 January 1987.

The chapter on External causes of morbidity and mortality[7] however was not circulated until September 1986 and comments were requested by 15 March 1987.

At the Second Expert Committee on ICD–10[8] held in Geneva in November 1987, a full draft proposal containing three– and four–character titles with inclusion and exclusion terms was presented for the first time.

Throughout the revision process, WHO received valuable advice and guidance from the annual meetings of the Heads of WHO Collaborating Centers for Classification of Diseases. The Centers are located in institutions in Canberra, Australia; Sao Paulo, Brazil; Beijing, China; London, England; Le Vésinet, France; Moscow, Russian Federation; Uppsala, Sweden; Hyattsville, USA; and Caracas, Venezuela. At their annual meetings, the Centre Heads are also joined by representatives of the Dutch National Committee for Classification and Coding and the Office of the ICD, Japan.

The International Conference for the Tenth Revision of the International Classification of Diseases,[9] attended by delegates from 43 Member States, was held in Geneva from 26 September to 2 October 1989. Following approval by the WHO Executive Board and the World Health Assembly in 1990, Volume 1 of ICD–10 was published in 1992 and the classification came into use in two countries in 1994. Several other countries will adopt it in 1995.

Chapter XIX: Injury, Poisoning and Certain Other Consequences of External Causes

At the meeting of Heads of WHO Collaborating Centers for Classification of Diseases held in San Francisco from 29 May to 4 June 1984, two separate proposals for the revision of the chapter related to injuries were presented.

One, prepared by the WHO Unit responsible for coordinating the periodic revision of the ICD,[10] followed the traditional approach of using the type of injury as the main axis of classification at the level of the blocks of categories with the site of involvement being identified at the three and four–character levels. The other, undertaken by the Accident Analysis Group of Odense University Hospital, Denmark,[11] took into account suggestions made by the WHO Joint EURO/Global Steering Committee on the Development of Indicators for Accidents.

The proposal was incompletely elaborated in that it covered only injuries in its biaxial classification using body region and type of injury with no provision being made for injuries of unspecified site. Also the proposal had not been discussed with the Nordic Medico Statistical Committee (NOMESCO) and it was thought that some Scandinavian countries would have preferred the traditional approach.

The Centre Heads recommended[12] that the proposal following the traditional approach, which had changed little over successive revisions, should form the basis for the injury chapter in the first formal draft proposal for ICD–10.[5] This recommendation was endorsed by the First Expert Committee on ICD–10.[4]

At their meeting in Sao Paulo, Brazil in April 1985, the Centre Heads heard that, at its meeting in Reykjavik in August 1984, the WHO Joint EURO/Global Steering Committee on the Development of Indicators for Accidents had requested that the Centre Heads reconsider the rejection by both their group and the Expert Committee of the draft chapter on Injury and Poisoning.

The Committee on the Development of Indicators for Accidents were of the view that an arrangement of injuries according to topography would be easier to apply and suitable for use by health workers at all levels. The accuracy of coding would also be enhanced by this approach.

The Centre Heads therefore rediscussed this issue and concluded that this approach should be tested before a final decision could be taken.[13]

Prior to the meeting of the Centre Heads held in Tokyo in April 1986, the proposed version of chapter XIX was reviewed at a NOMESCO Seminar at Hesselet, Denmark from 14 to 16 January 1986. For this review, a limited number of hospital cases and death certificates were used. The Seminar gave rise to a number of recommendations

which were subsequently incorporated in a revised draft that formed the basis of the second draft proposal for ICD–10 circulated in August 1986.[6]

Field testing was carried out by the Department of Health Economics and Public Health, Odense University, Denmark using 700 consecutive emergency room contacts during 1 to 15 December 1986 and 245 acute trauma–related admissions randomly sampled over the period 1 January to 31 May 1986. The results were reported to the Centre Heads at their meeting in June 1987.[14]

On the basis of comments received and the results of the field trials that had been carried out, the chapter was further revised and another version was presented to the Centre Heads when they met in Paris in March 1989. The primary axis of classification of body region however still did not allow for the assignment of imprecise descriptions of injuries that related only to the trunk, upper limbs, lower limbs or unspecified limb.

Three possible solutions were proposed to this problem. One (option A) which required minimum rearrangement of the systematic structure of the chapter and provided a new block of categories for injuries to broader body regions, one (option B) which required greater rearrangement and condensation of the effects of foreign bodies into a single three–character code, and a third solution (option C) which involved reducing the amount of space available for detail by creating body regions for upper limb, lower limb and a trunk. After detailed discussion, the Centre Heads requested the secretariat to proceed with a further revision of this chapter on the basis of option A.

A revised version was prepared in time for the Revision Conference that was held in September/October 1989 and subsequently approved by WHO Executive Board and the World Health Assembly in 1990.

The "S" series of codes (S00–S99) is used to classify injuries related to single "body regions". The 10 body regions are the following:

S00–S09	Head
S10–S19	Neck
S20–S29	Thorax
S30–S39	Abdomen, lower back, lumbar spine and pelvis
S40–S49	Shoulder and upper arm
S50–S59	Elbow and forearm
S60–S69	Wrist and hand
S70–S79	Hip and thigh
S80–S89	Knee and lower leg
S90–S99	Ankle and foot

Within each block of 10 three–character categories, specific injury types are identified at the three–character level:

Superficial injury
Open wound
Fracture
Dislocation, sprain and strain
Injury to nerves and spinal cord
Injury to blood vessels
Injury to muscle and tendon
Crushing injury
Traumatic amputation
Injury to internal organs
Other and unspecified injuries

The same injury type usually has the same third character in the code but there are some exceptions made necessary by the importance of certain injuries, so that:

S05 which, in the matrix approach, would normally mean Injury to blood vessels of head has been used to identify Injuries of eye and orbit

S06 (Injury to muscle and tendon of head) relates to Intracranial injury

S26 (Injury to muscle and tendon of thorax) relates to Injury of heart

S27 (Crushing injury of thorax) relates to Injury of other and unspecified intrathoracic organs

S28 (Traumatic amputation of part of thorax) groups both crushing injury and traumatic amputation

S36 (Injury to muscle and tendon of abdomen, etc.) is used to identify Injury of intra–abdominal organs

S37 (Crushing injury of abdomen, etc.) relates to Injury of pelvic organs

S38 (Traumatic amputation of abdomen, etc.) groups both crushing injury and traumatic amputation.

In each case where there is a deviation from the matrix meaning of the code, the injury type is assigned a fourth–character subcategory at SX9:

S090 Injury of blood vessels of head
S091 Injury of muscle and tendon of head
S290 Injury of muscle and tendon at thorax level
S390 Injury of muscle and tendon of abdomen, etc.

The "T" series of codes (T00–T98)

Injuries involving multiple body regions are assigned to T00–T07. The three–character categories identify the main injury types:

T00 Superficial injuries
T01 Open wounds
T02 Fractures
T03 Dislocations, sprains and strains
T04 Crushing injuries
T05 Traumatic amputations

Category T06 covers other injuries involving multiple body regions and is subdivided as follows:

T06.0 Brain and cranial nerves with nerves and spinal cord at neck level
T06.1 Nerves and spinal cord involving other multiple body regions
T06.2 Nerves involving multiple body regions
T06.3 Blood vessels involving multiple body regions
T06.4 Muscles and tendons involving multiple body regions
T06.5 Intrathoracic organs with intra–abdominal and pelvic organs
T06.6 Other specified injuries involving multiple body regions

Injuries that are unspecified as to the body region involved are assigned to T08–T14:

T08 Fracture of spine, level unspecified
T09 Other injuries of spine and trunk, level unspecified
T10 Fracture of upper limb, level unspecified
T11 Other injuries of upper limb, level unspecified

T12 Fracture of lower limb, level unspecified
T13 Other injuries of lower limb, level unspecified
T14 Injury of unspecified body region

Categories T08, T10 and T12 are unsubdivided as they relate specifically to fractures, while T09, T11, T13 and T14 are subdivided according to the broad injury types.

Foreign bodies which were attributed 10 three–digit categories in ICD–9 are accommodated in only five categories in ICD–10. This has been achieved by using broader anatomical groups at the category level. The only ICD–9 site that can no longer be specifically coded is the lacrimal punctum while the nasal sinus, nostril, small intestine, colon, urethra and bladder are now separately identifiable.

Burns and corrosions (T20–T32)

The ten categories assigned to these injuries in ICD–9 are increased to 13 in ICD–10. Apart from burns confined to the eye and adnexa, ICD–9 did not distinguish between thermal and chemical burns. In ICD–10, fourth–character subdivisions are used both to distinguish between burns and corrosions and whether first, second, third or unspecified degree. The three additional categories are used to identify burn and corrosion of ankle and foot (T25), burn and corrosion of respiratory tract (T27) and corrosions according to extent of body surface involved (T32).

Frostbite was classified within four fourth–digit subcategories of category 991 of ICD–9 (Effects of reduced temperature). In ICD–10, three three–character categories (T33–T35) are used to classify superficial frostbite, frostbite with tissue necrosis and frostbite involving multiple body regions or of unspecified degree. The fourth–character subcategories identify the site of involvement.

The remaining categories in this chapter are grouped as follows:

T36–T40	Poisoning by drugs, medicaments and biological substances
T51–T65	Toxic effects of substances chiefly nonmedicinal as to source
T66–T78	Other and unspecified effects of external causes
T79	Certain early complications of trauma
T80–T88	Complications of surgical and medical care, not elsewhere classified
T90–T98	Sequelae of injuries, of poisoning and of other consequences of external causes

There has been some concern expressed regarding comparability of injury data between ICD–9 and ICD–10. Annex A shows the ICD–9 groups of injuries with the equivalent ICD–10 codes. Although it is necessary to group dislocations with sprains and strains and superficial injuries with contusions, it is possible to approximate the ICD–9 groupings. The only problem area relates to traumatic amputation (classified as an open wound in ICD–9) and crushing injury of unspecified body region that are both assigned to T14.7 in ICD–10. Annex B groups ICD–10 injury types from the different body regions. Again, the only difficulty relates to T14.7.

Chapter XX: External Causes of Morbidity and Mortality

The traditional ICD approach to the classification of external causes, while perhaps relevant to mortality uses was, in many respects, considered to be inadequate for the needs of injury prevention programmes and policies. Several groups had been working on alternative methods of classification and at the first Expert Committee on ICD–10 in 1984, two multi–axial approaches were presented—one by the WHO Joint Euro/Global Steering Committee on the Development of Indicators for Accidents[15] and the other by NOMESCO.[16] Both classifications were, however, incompletely elaborated as they placed the emphasis on accidents and it was also doubtful whether a departure from the basic principle of the ICD as a single–variable axis classification could be accepted for one chapter. The first draft proposal for ICD–10 that was circulated in August 1984[5] therefore followed the traditional approach for this chapter.

At the meeting of Heads of WHO Collaborating Centers for Classification of Diseases in 1985, two further proposals were submitted. A NOMESCO document showing a multi–axial approach for accident monitoring[17] and a proposal from the Centers for Disease Control(CDC)/Consumer Product Safety Commission (CPSC) in the United States[18] which took a more traditional approach but reallocated space in accordance with their concept of the needs of prevention programmes. The Centre Heads appreciated the work of the two groups but felt that such proposals might more appropriately be considered in the context of a specialty–based application of the ICD for injury prevention.

In 1986, the Centre Heads reviewed another two proposals, one prepared by a WHO Working Party, which occupied 400 three–character categories and was strongly influenced by the systematic approach of the NOMESCO classification. The other, drawn up by CDC and CPSC in the USA was constructed within the 200 three–character categories that were available in the ICD–9. These two draft proposals were contained in a single document.[19] After considering the two proposals, the Center Heads recommended that the best aspects of the two drafts should be merged into a revision proposal that would utilize only three alphabetical characters but that would be completed down to the fourth–character level.

Representatives of the two groups and of WHO met in Odense from 19 to 22 August 1986 under the auspices of NOMESCO and with the generous support of the administration of the Odense Sygehus, to produce a draft proposal on the basis of the recommendations of the Centre Heads. The draft prepared by the working group was circulated to WHO Member States, and other interested groups and individuals as a part of the second formal draft proposal for ICD–10[7] in September 1986. Comments were requested by 15 March 1987. The comments received were discussed at a meeting held in Atlanta, USA in March 1987 by representatives from the United States, NOMESCO and WHO.

A further revision was prepared and submitted to the Centre Heads in June 1987.[20] The Centre Heads identified a number of deficiencies and as a result the Centre for North America offered to prepare a revised proposal.[21] Subsequently, the WHO Secretariat proceeded with a further elaboration[22] in which the order of sections was changed to permit a more efficient use of the available space and to reflect comments that had been received too late for consideration by the Atlanta meeting. Unfortunately the timetable for revision did not allow for the two groups to collaborate in the preparation of the drafts so that two different versions were put before the second Expert Committee on ICD–10 in November 1987.

The Expert Committee found advantages and disadvantages in both the draft proposals. In addition to a number of specific comments, it recommended that WHO and the North American Center proceed with a synthesis of the two drafts, that the resulting classification should be tested by one or more collaborating centers and the results presented to the 1988 meeting of Heads of WHO Collaborating Centers for the Classification of Diseases.

Representatives of WHO, the North American Center and NOMESCO came together from 3 to 5 February 1988 at the National Center for Health Statistics, Hyattsville, Maryland, USA and prepared the revised draft proposal using the order of categories contained in the WHO proposal. The revised draft proposal[23] was sent to WHO Collaborating Centers for field testing and at their 1988 meeting, the Centre Heads heard results of testing carried out in Brazil,[24] Denmark,[25] England,[26] Finland,[27] Sweden,[28] the United States[29] and Venezuela.[30] The detailed findings were referred to the secretariat for development of the draft proposal to be submitted to the Revision Conference.

Some further refinements were made to the draft that was submitted to the Centre Heads at their 1989 meeting and the resultant classification was submitted to the International Conference for the Tenth Revision of the ICD held in Geneva from 26 September to 2 October 1989.

It should be noted that this chapter forms an integral part of ICD–10. The ICD–9 designation of this classification as being supplementary has been discontinued in an effort to encourage its use for both ambulatory and in–patient morbidity systems.

The proposal as presented to the Revision Conference and included in the published ICD–10 uses the code range V01–Y99.

The letter V is used for transport accidents. The first eight blocks of 10 categories identify the victim's mode of transport at the second character level:

V0 Pedestrian
V1 Pedal cyclist
V2 Motorcycle rider
V3 Occupant of three–wheeled motor vehicle
V4 Car occupant
V5 Occupant of pick–up truck or van
V6 Occupant of heavy transport vehicle
V7 Bus occupant

The third character identifies the victim's counterpart or the circumstances of the accident:

VX0 Collision with pedestrian or animal
VX1 Collision with pedal cyclist
VX2 Collision with two– or three–wheeled motor vehicle
VX3 Collision with car, pick–up truck or van
VX4 Collision with heavy transport vehicle or bus
VX5 Collision with railway train or railway vehicle
VX6 Collision with other non motor vehicle
VX7 Collision with fixed or stationary object
VX8 Noncollision transport accident
VX9 Other and unspecified transport accident

This matrix approach is shown in more detail at Annex C. It should be noted that code V00 is not used as in the matrix this would relate to a collision between a pedestrian and another pedestrian. Such events are classified to W51.

The fourth–character is used to identify both the activity of the victim and whether the event was a traffic or a nontraffic accident:

VXX.0 Driver, nontraffic
VXX.1 Passenger, nontraffic
VXX.2 Person on outside of vehicle, nontraffic
VXX.3 Unspecified occupant, nontraffic
VXX.4 Person boarding or alighting
VXX.5 Driver, traffic
VXX.6 Passenger, traffic
VXX.7 Person on outside of vehicle traffic
VXX.9 Unspecified occupant, traffic

The remainder of land transport accidents are covered by categories V80–V89:

V80 Animal–rider or occupant of animal–drawn vehicle
V81 Occupant of railway train or railway vehicle
V82 Occupant of streetcar
V83 Occupant of special vehicle mainly used on industrial premises
V84 Occupant of special vehicle mainly used in agriculture
V85 Occupant of special construction vehicle
V86 Occupant of special all–terrain or other motor vehicle designed primarily for off–road use
V87 Traffic accident of special type but victim's mode of transport unknown
V88 Nontraffic accident of specified type but victim's mode of transport unknown
V89 Motor– or nonmotor–vehicle accident, type of vehicle unspecified

V80–V86 show the victim's mode of transport while the fourth–character subdivisions relate to the circumstances of the accident.

V87–V88 are used for accidents where information is available regarding the vehicles involved or the circumstances of the accident but the victim's mode of transport is unknown.

V89 covers those circumstances where the only available information relates to that unspecified motor–vehicle or non motor vehicle was involved and whether the event was a traffic accident or a nontraffic accident.

Apart from transport accidents, the remainder of the categories are only shown at the three–character level as there are standard fourth–character subcategories for W00–Y34 (except Y06 and Y07, maltreatment syndromes) to identify the place of occurrence of the external cause.

Place of occurrence:

.0 Home
.1 Residential institution
.2 School, other institution and public administrative area
.3 Sports and athletics area
.4 Street and highway
.5 Trade and service area
.6 Industrial and construction area
.7 Farm
.8 Other specified places
.9 Unspecified place

As the place of occurrence is not relevant to legal intervention (Y35), operations of war (Y36) and complications of medical and surgical care (Y40–Y84), the fourth character is used to provide more detail about the nature of the event or, in the case of adverse effects of drugs, the type of substance involved.

In addition to the fourth characters for place of occurrence, a further subclassification is provided for optional use in a supplementary character position (i.e., the fifth character or beyond according to the structure of the data system) to indicate the activity of the injured person at the time the event occurred. These activity codes are intended to be used with all categories including those where the place of occurrence codes do not apply:

0 While engaged in sports activity
1 While engaged in leisure activity
2 While working for income
3 While engaged in other types of work
4 While resting, sleeping, eating or engaging in other vital activities
8 While engaged in other specified activities
9 During unspecified activities

Falls have been moved to the beginning of the W series of codes at W00–W19 and new groupings have been created at:

W20–W49	Exposure to inanimate mechanical forces
W50–W64	Exposure to animate mechanical forces
W65–W74	Accidental drowning and submersion
W75–W84	Other accidental threats to breathing
W85–W99	Exposure to electric current, radiation and extreme ambient air temperature or pressure
X00–X09	Exposure to smoke, fire and flames
X10–X19	Contact with heat and hot substances
X20–X29	Contact with venomous plants and animals

X30–X39	Exposure to forces of nature
X40–X49	Accidental poisoning and exposure to noxious substances
X50–X57	Overexertion, travel and privation
X58,X59	Exposure to other and unspecified accidental factors

The last category in the group of accidents X59, Exposure to unspecified factors includes Fracture not otherwise specified, which was previously classified in the section on Falls.

The ICD–9 section of Suicide and Self–inflicted injury is redesignated as Intentional self–harm and appears at X60–X84.

Assault, including neglect and abandonment and other maltreatment syndromes which are subdivided to identify the perpetrator, is shown at X85–Y09.

The ICD–9 section of injury undetermined whether accidentally or purposely inflicted is now designated Event of undetermined intent at Y10–Y34.

Legal intervention and Operations of war which each occupied ten three–digit categories in ICD–9 are both given a single three–character category at Y35 and Y36.

Complications of medical care are brought together in contiguous blocks of categories within Y40–Y84. This includes a new group at Y70–Y82 for Medical devices associated with adverse incidents in diagnostic and therapeutic use.

Sequelae of external causes which were included at the end of the relevant sections of accident, suicide, undetermined, etc. in ICD–9 have been brought together at Y85–Y89.

Finally, the last section in this chapter concerns supplementary factors related to causes of morbidity and mortality classified elsewhere. This includes two categories to identify the involvement of alcohol, one subdivided by blood alcohol content and the other identifying alcohol intoxication as mild, moderate, severe and very severe on the basis of assessment of behaviour, functions and responses. The other categories in the group may be used as additional codes to identify conditions as nosocomial, work–related, environmental–pollution related, and life–style related.

An overview of the blocks of categories in this chapter is given at Annex D.

References

1. International Classification of Diseases and Related Health Problems. Tenth Revision. Vol 1: Tabular List. Geneva, World Health Organization, 1992.

2. International Classification of Impairments, Disabilities, and Handicaps. Geneva, World Health Organization, 1980.

3. Report of the Preparatory Meeting on ICD–10. Geneva, World Health Organization, 1983 (unpublished document DES/ICD–10/83.19).

4. Report of the Expert Committee on the International Classification of Diseases. First meeting on the Tenth Revision. Geneva, World Health Organization, 1984 (unpublished document DES/ICD–10/84.34).

5. Circulation of First Draft Proposal for the Tenth Revision of the International Classification of Diseases. Geneva, World Health Organization, 1984 (unpublished document ICD/I/1984).

6. Circulation of the Second Draft Proposal for the Tenth Revision of the International Classification of Diseases. Geneva, World Health Organization, 1986 (unpublished document WHO/DES/ICD/II/1986).

7. Circulation of the Second Draft Proposal for the Tenth Revision of the International Classification of Diseases (ICD–10). Draft Chapter XX: External Causes of Morbidity and Mortality. Geneva, World Health Organization, 1986 (unpublished document WHO/DES/ICD/II/1986 Annex 2).

8. Report of the Expert Committee on the International Classification of Diseases. Second Meeting on the Tenth Revision. Geneva, World Health Organization, 1987 (unpublished document WHO/DES/EC/87.38).

9. Report of the International Conference for the Tenth Revision of the International Classification of Diseases. Geneva, World Health Organization, 1989 (unpublished document WHO/ICD10/REV.CONF/89.9/Rev.1).

10. Alphanumeric approach to the Tenth Revision of the International Classification of Diseases. Geneva, World Health Organization, 1984 (unpublished document DES/ICD/C/84.5).

11. Kruse T and Frandsen PA. Tenth Revision of the ICD, Draft Chapter XVII: Injury and Poisoning, Proposal for Revision of Categories and Subcategories. Geneva, World Health Organization, 1984 (unpublished document DES/ICD/C/84.22).

12. Report of the Meeting of Heads of WHO Collaborating Centres for Classification of Diseases. Geneva, World Health Organization, 1984 (unpublished document DES/ICD/C/84.48).

13. Report of the Meeting of Heads of WHO Collaborating Centres for Classification of Diseases. Geneva, World Health Organization, 1985 (unpublished document DES/ICD/C/85.27).

14. Kruse T, Frandsen PA, Röck ND. Injury, poisoning and other consequences of external causes: field testing of chapter XIX, ICD–10 (second draft). Odense, Odense University, 1987 (Background document No. 2 for Meeting of Heads of Collaborating Centres for Classification of Diseases, Leningrad, USSR, 1987).

15. Kruse T. Tenth Revision of the ICD, Draft Chapter XXI: External Cause of Injury and Poisoning, Proposal for Revision. Geneva, World Health Organization, 1984 (unpublished document DES/ICD/C/84.26).

16. Development of a Nordic Classification for Accident Monitoring by the Nordic Medico–Statistical Committee (NOMESCO). Geneva, World Health Organization, 1984 (unpublished document DES/ICD/C/84.47).

17. Nordic Medico–Statistical Committee. Nordic Classification of Accident Monitoring: Codes and Manuals. Geneva, World Health Organization, 1985 (unpublished document DES/ICD/C/85.21).

18. Centers for Disease Control/Consumer Product Safety Commission Work Group to revise ICD–10 Injury Codes. Proposed Modification of ICD–10 Chapter on External Causes of Morbidity and Mortality. Geneva, World Health Organization, 1985 (unpublished document DES/ICD/C/85.9)

19. Tenth Revision of the ICD, Draft Chapter XX: External Causes of Morbidity and Mortality. Proposal for Revision of ICD Categories. Geneva, World Health Organization, 1986 (unpublished document WHO/DES/ICD/C/86.020).

20. Draft Chapter XX: External Causes of Morbidity and Mortality. Geneva, World Health Organization, 1987 (unpublished document DES/ICD/C/87.20).

21. WHO Collaborating Center for Classification of Diseases for North America. Modification to the ICD–10 Third Draft Proposal for Chapter XX: External Causes of Morbidity and Mortality. Geneva, World Health Organization, 1987 (unpublished document WHO/DES/EC/ICD–10/87.22).

22. Draft Chapter XX: External Causes of Morbidity and Mortality. Geneva, World Health Organization, 1987 (unpublished document WHO/DES/EC/ICD–10/87.20).

23. Field Trial Version of the Chapter on External Causes of Morbidity and Mortality. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.17).

24. Laurenti R and Jorge MHPM. Field Trial of Chapter XX (External Causes of Morbidity and Mortality). Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.19).

25. Kruse T and Röck ND. Preliminary Report of Field Trial of ICD–10, Draft Chapter XX, Based on Morbidity Data. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.24).

26. Comments of the Chapter of External Causes of Morbidity and Mortality by the WHO Centre, London. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.29).

27. Karkola K. Comments on the Field Trial Version of the Chapter on External Causes of Morbidity and Mortality from Finland. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.25).

28. Smedby B. Comments on the Field Trial Version of the Chapter of External Causes of Morbidity and Mortality from Sweden. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.26)

29. WHO Collaborating Center for Classification of Diseases for North America. Results of a Test of Adequacy of Draft of ICD–10 Chapter XX. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.7).

30. Bridge Study ICD–9/10, Venezuela. Preliminary Report. Geneva, World Health Organization, 1988 (unpublished document DES/ICD/C/88.35).

Annex A

ICD–9 Groups of Injuries with Equivalent ICD–10 Codes

Fractures (800–829)

S02, S07.0, S07, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2

Dislocation (830–839)
Sprains and strains (840–848)

S03, S13, S23, S33, S43, S53, S63, S73, S83, S93, T03, T09.2, T11.2, T13.2, T14.3

Intracranial injury (850–854)

S06, T06.0

Internal injury of chest, abdomen and pelvis (860–869)

S26, S27, S36, S37, S39.6, T06.5

Open wounds (870–897)

S01, S05.2,–S05.7, S08, S09.2, S11, S18, S21, S28.1, S31, S38.2, S38.3, S41, S48, S51, S58, S61, S68, S71, S78, S81, S88, S91, S98, T01, T05, T09.1, T09.6, T11.1, T11.6, T13.1, T13.6, T14.1, T14.7 part

Injury to blood vessels (900–904)

S09.0, S15, S25, S35, S45, S55, S65, S75, S85, S95, T06.3, T11.4, T13.4, T14.5

Late effects (905–909)

T90–T98

Superficial injury (910–919)
Contusion with intact skin surface (920–924)

S00, S05.0, S05.1, S05.8, S05.9, S10, S20, S30, S40, S50, S60, S70, S80, S90, T00, T09.0, T11.0, T13.0, T14.0

Crushing injury (925–929)

S17, S28.0, S38.0, S38.1, S47, S57, S67, S77, S87, S97, T04, T14.7 part

Effects of foreign body entering through orifice (930–939)

T15–T19

Burns (940–949)

T20–T32

Injury to nerves and spinal cord (950–957)

S04, S14, S24, S34, S44, S54, S64, S74, S84, S94, T06.1, T06.2, T09.3, T09.4, T11.3, T13.3, T14,4

Certain traumatic complications (958)

T79

Injury, other and unspecified (959)

S05, S09.7, S09.8, S09.9, S19, S29.7, S29.8, S29.9, S39.7, S39.8, S39.9, S49.7, S49.8, S49.9, S59.7, S59.8, S59.9, S69.7, S69.8, S69.9, S79.7, S79.8, S79.9, S89.7, S89.8, S89.9, S99.7, S99.8, S99.9, T06.8, T07, T09.8, T09.9, T11.8, T11.9, T13.8, T13.9, T14.8, T14.9

Poisoning by drugs, medicaments and biological substances (960–979)

T36–T50

Toxic effects of substances chiefly nonmedicinal as to source (980–989)

T51–T65

Other and unspecified effects of external causes (990–995)

T33–T35, T66–T78

Complications of surgical and medical cause not elsewhere classified (996–999)

T80–T88

Annex B

ICD–10 Injury Types Grouped by Codes from the Different Body Regions

Superficial injury (including contusions)

S00, S10, S20, S30, S40, S50, S60, S70, S80, S90, T00, T09.0, T11.0, T13.0, T14.0

Open wound

S01, S11, S21, S31, S51, S61, S71, S81, S91, T01, T09.1, T09.6, T11.1, T13.1, T14.1

Fracture

S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2

Dislocation, sprain and strain

S03, S13, S23, S33, S43, S53, S63, S73, S83, S93, T03, T09.2, T11.2, T13.2, T14.3

Injury to nerves and spinal cord

S04, S14, S24, S34, S44, S54, S64, S74, S84, S94, T06.1, T06.2, T09.3, T09.4, T11.3, T13.3, T14.4

Injury to blood vessels

S09.0, S15, S25, S35, S45, S55, S65, S75, S85, S95, T06.3, T11.4, T13.4, T14.5

Injury to muscle and tendon

S09.1, S16, S29.0, S39.0, S46, S56, S66, S76, S86, S96, T06.4, T09.5, T11.5, T13.5, T14.6

Crushing injury

S07.0, S07.8, S17, S28.0, S38.0, S38.1, S47, S57, S67, S77, S87, S97, T04, T14.7 part

Traumatic amputation

S08, S18, S28.1, S38.2, S38.3, S48, S58, S68, S78, S88, S98, T05, T09.6, T11.6, T13.6, T14.7 part

Injury to internal organs

S06, S26, S27, S36, S37, S39.6, T06.5

Other and unspecified injuries

S05, S09.2, S09.7, S09.8, S09.9, S19, S29.7, S29.8, S29.9, S39.7, S39.8, S39.9, S49.7, S49.8, S49.9, S59.7, S59.8, S59.9, S69.7, S69.8, S69.9, S79.7, S79.8, S79.9, S89.7, S89.8, S89.9, S99.7, S99.8, S99.9, T06.0, T06.8, T07, T09.8, T09.9, T11.8, T11.9, T13.8, T13.9, T14.8, T14.9

Annex C

Table of land transport accidents

In collision with or involved in:

Victim and mode of transport	Pedestrian or animal	Pedal cycle	Two- or three-wheel motor vehicle	Car (automobile) pick-up truck or van	Heavy transport vehicle or bus (coach)	Other motor vehicle	Railway train or vehicle	Other nonmotor vehicle including animal-drawn vehicle	Collision with fixed or stationary object	Noncollision transport accident	Other or unspecified transport accident
Pedestrian	(W51.–	V01.–	V02.–	V03.–	V04.–	V09.–	V05.–	V06.–	(W22.5)	–	V09
Pedal cycle	V10.–	V11.–	V12.–	V13.–	V14.–	V19.–	V15.–	V16.–	V17.–	V18.–	V19.–
Motorcycle rider	V20.–	V21.–	V22.–	V23.–	V24.–	V29.–	V25.–	V26.–	V27.–	V28.–	V29.–
Occupant of:											
—three-wheeled motor vehicle	V30.–	V31.–	V32.–	V33.–	V34.–	V39.–	V35.–	V36.–	V37.–	V38.–	V39.–
—car (automobile)	V40.–	V41.–	V42.–	V43.–	V44.–	V49.–	V45.–	V46.–	V47.–	V48.–	V49.–
—pick up truck or van	V50.–	V51.–	V52.–	V53.–	V54.–	V59.–	V55.–	V56.–	V57.–	V58.–	V59.–
—heavy transport vehicle	V60.–	V61.–	V62.–	V63.–	V64.–	V69.–	V65.–	V66.–	V67.–	V68.–	V69.–
—bus (coach)	V70.–	V71.–	V72.–	V73.–	V74.–	V79.–	V75.–	V76.–	V77.–	V78.–	V79.–
—animal-drawn vehicle (or animal rider)	V80.1	V80.2	V80.3	V80.4	V80.4	V80.5	V80.6	V80.7	V80.8	V80.0	V80.9

Annex D

CHAPTER XX
External causes of morbidity and mortality
(V01–Y98)

V01–X59	Accidents	
	V01–V99	Transport accidents
	V01–V09	Pedestrian injured in transport accident
	V10–V19	Pedal cyclist injured in transport accident
	V20–V29	Motorcycle rider injured in transport accident
	V30–V39	Occupant of three–wheeled motor vehicle injured in transport accident
	V40–V49	Car occupant injured in transport accident
	V50–V59	Occupant of pick–up truck or van injured in transport accident
	V60–V69	Occupant of heavy transport vehicle injured in transport accident
	V70–V79	Bus occupant injured in transport accident
	V80–V89	Other land transport accidents
	V90–V94	Water transport accidents
	V95–V97	Air and space transport accidents
	V98–V99	Other and unspecified transport accidents
W00–X59	Other external causes of accidental injury	
	W00–W19	Falls
	W20–W49	Exposure to inanimate mechanical forces
	W50–W64	Exposure to animate mechanical forces
	W65–W74	Accidental drowning and submersion
	W75–W84	Other accidental threats to breathing
	W85–W99	Exposure to electric current, radiation and extreme ambient air temperature and pressure
	X00–X09	Exposure to smoke, fire and flames
	X10–X19	Contact with heat and hot substances
	X20–X29	Contact with venomous animals and plants
	X30–X39	Exposure to forces of nature
	X40–X49	Accidental poisoning by and exposure to noxious substances
	X50–X57	Overexertion, travel and privation
	X58–X59	Accidental exposure to other and unspecified factors
X60–X84	Intentional self–harm	
X85–Y09	Assault	
Y10–Y34	Event of undetermined intent	
Y35–Y36	Legal intervention and operations of war	
Y40–Y84	Complications of medical and surgical care	
	Y40–Y59	Drugs, medicaments and biological substances causing adverse effects in therapeutic use
	Y60–Y69	Misadventures to patients during surgical and medical care
	Y70–Y82	Medical devices associated with adverse incidents in diagnostic and therapeutic use
	Y83–Y84	Surgical and other 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
Y85–Y89	Sequelae of external causes of morbidity and mortality	
Y90–Y98	Supplementary factors related to causes of morbidity and mortality classified elsewhere	