

# **ICECI : Case Scenario Testing**

**2000**

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# Abstract

The WHO Working Group on Injury Surveillance Methods (WGISM) has developed a draft International Classification of External Causes of Injury (ICECI). This is a multi-axial code set, for use in a range of settings, to capture detailed information about aspects of injury circumstances, e.g. intent, mechanism, object/substance, place, etc. As with most existing injury classifications, early drafts of the ICECI had not been evaluated in any formal way. During 1999, the WGISM evaluated the June 1999 draft of the ICECI. The testing involved a review of the ICECI by experts; field testing of the ICECI in emergency departments; and the coding of case scenarios using the ICECI. The case scenario testing was coordinated by the AIHW National Injury Surveillance Unit (NISU) in Australia. This report concerns this part of the testing. (The other projects were organised by the Consumer Safety Institute in the Netherlands.)

The specific objective of the case scenario testing was to use a test set of 100 case summaries to measure criterion validity and inter-observer reliability among volunteers knowledgeable about health coding. We also planned to undertake qualitative assessment of the draft.

This study comprised the development of the test set, as well as the dissemination thereof together with the draft ICECI and instructions to volunteers. A 'gold standard' was compiled by a reference group. At the end of December 1999, a total of 27 organisations (39 individuals) had completed the testing and 32 coded test sets were received. Analysis consisted of qualitative examination of feedback and the coded test sets, as well as quantitative analysis of the data.

The ICECI was received favourably by participants in this study. Both the qualitative and quantitative analyses indicated that, in general, *Mechanism* and *Object/Substance* were the most problematic data elements. However, these data elements have the biggest range of codes and embody considerable conceptual complexity. In the testing described here, the coding of *Mechanism* and *Object/Substance* was further complicated by the possibility of providing more than one code for both data elements. This allowance reflects the reality that an injury is often the result of a sequence of events, and the selection of one among several candidate 'underlying' mechanisms and objects/substances in a consistent manner is a complex task. Other data elements seemed to produce fewer problems and those identified were more focused on the detailed application of relevant codes. However, all lists of codes needed to be reviewed and expanded. One recurring comment was that more guidelines and examples were needed for all data elements.

The present findings concerning the June draft of the ICECI do not, of themselves, provide guidance concerning its performance in comparison with other systems for classification of external causes on injuries. The novel methods used here could be applied to other systems, and comparisons could then be made. As such the methods presented here are steps towards producing evidence-based classifications.

Changes made to the ICECI between the June 1999 draft (the subject of this study) and the first release version were partly based on the findings of this study.



# Contents

Abstract.....	iii
Contents.....	v
Acknowledgments .....	vi
Abbreviations used .....	viii
<b>1 Introduction.....</b>	<b>1</b>
1.1 The ICECI.....	1
1.2 Structure of the ICECI.....	2
1.3 Testing of the ICECI.....	3
<b>2 Aim.....</b>	<b>4</b>
<b>3 Methods.....</b>	<b>5</b>
3.1 The test set of case scenarios.....	5
3.2 Participants .....	6
3.3 The testing process .....	8
3.4 The 'gold standard' .....	9
3.5 Analysis .....	10
<b>4 Results.....</b>	<b>13</b>
4.1 Quantitative analysis.....	13
4.2 Qualitative analysis.....	20
<b>5 Discussion.....</b>	<b>47</b>
<b>6. Recommendations.....</b>	<b>49</b>
Appendix 1: Abbreviated version of the ICECI data dictionary used in the testing ..	50
Appendix 2a : List of 100 case scenarios .....	78
Appendix 2b: Example of coding form .....	87
Appendix 3 : Participant Questionnaire.....	88
Appendix 4 : ICECI Case scenario guide.....	91
Appendix 5 : Index for object/substance .....	106
Appendix 6 : Calculation of per cent agreement without consideration of chance..	111
Appendix 7 : Example of analysis of comments .....	113
Appendix 8: Contact details .....	115
Appendix 9 : Comments on the testing process .....	116

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## Abbreviations used

<b>ICECI</b>	International Classification of External Causes of Injury
<b>WGISM</b>	WHO Working Group on Injury Surveillance Methods
<b>ICD</b>	International Classification of Diseases
<b>EHLASS</b>	European Home and Leisure Accident Surveillance System
<b>CHIRPP</b>	Canadian Hospitals Injury Reporting and Prevention Program
<b>NDS-IS</b>	National Data Standards for Injury Surveillance
<b>NOMESCO</b>	Classification of External Causes of Injuries - Nordic Medico Statistical Committee
<b>UEDDS</b>	Uniform Emergency Department Data Set
<b>Nec</b>	Not elsewhere classified
<b>NEISS</b>	National Electronic Injury Surveillance System (USA)
<b>NISPP</b>	National Injury Surveillance and Prevention Project
<b>AIS</b>	Abbreviated Injury Score
<b>ISS</b>	Injury Severity Scale
<b>LIS</b>	Letsel Informatie Systeem (Netherlands)
<b>..</b>	Not applicable





# 1 Introduction

## 1.1 The ICECI

The WHO Working Group on Injury Surveillance Methods (WGISM) has developed and released a draft International Classification of External Causes of Injury (ICECI).

This follows at least two decades of exchanges and debate on the need for upgrading the classic tool for representation, i.e. the International Classification of Diseases (ICD) Chapters XVII and XX. ICD's inherent shortcomings for injury epidemiology have led to a number of initiatives which in the end merged into a joint international endeavour under the auspices of the WHO with the aim to develop a tool for injury researchers and data collectors, based on best practice so far in injury surveillance system.

The ICECI is the result of that. It is a multi-axial code set to capture detailed information for multiple use about different aspects of injury circumstances, e.g. the place of occurrence, activity, intent of injury, etc.

ICECI was designed for application in different settings and at different levels of research sophistication and aims to ensure a high degree of uniformity in the methodology, structure and data content of injury surveillance systems that operate where injured people are treated. The guidelines and classification serve as a general instrument for the health sector's routine registration of the aetiology of all types of injury. The purpose of the classification is to assist researchers and prevention practitioners in:

- defining more precisely the domain of injuries they are studying;
- answering questions such as where did the injury occur, how, under what circumstances and which products were involved; and
- in providing a more detailed description of specific categories of injuries such as sports injuries and injuries due to violence.

The ICECI document relating to this document consisted of seven chapters. These were (1) Introduction; (2) Guide to the structure of the classification and its use; (3) Data Dictionary; (4) Mapping ICD-10 to ICECI; (5) Glossary of terms; (6) Theory: a short guide to injury surveillance; (7) Practice: implementing injury surveillance.

The first draft of the ICECI was released for consultation in May 1998 and after the first consultation round a second draft of Chapter 3 (i.e. the Data Dictionary) was released in January 1999. More amendments were made and in June 1999 another draft of the Data Dictionary was released.

## 1.2 Structure of the ICECI

The Data Dictionary (Appendix 1) contains the lists of ICECI codes. At the time of writing the ICECI structure comprised three MODULES:

### 1. The CORE MODULE

This module had to be completed for all cases meeting the injury case definition. The core module consisted of the following data elements:

- *Intent to injure*
- *Mechanism of injury*
- *Object/substance producing injury*
- *Place of occurrence when injured*
- *Activity when injured*
- *Alcohol use*
- *Other psychoactive drug use*

Because of the often complex nature of injury events, e.g. more than one mechanism or object/substance may be involved, it was decided to allow for two mechanisms to be coded in the ICECI. At the time the testing started, the mechanism most immediately responsible for physical injury (i.e. the *Direct mechanism*), as well as one other mechanism involved in the injury (i.e. the *Contributing mechanism*) were to be coded. There was also allowance for three objects/substances to be coded. As with mechanism, the first to be coded was the *Direct object/substance*, followed by two other *Contributing objects/substances*.

### 2. The VIOLENCE MODULE

This module related to injuries due to interpersonal violence, intentional self-harm and legal intervention. It comprised the following variables at the time of writing:

- two data elements for assault cases, i.e. the *Relationship between perpetrator and victim* and the *Context of assault*;
- one data element for self-harm injuries, i.e. *Precipitating factors*
- one data element for legal intervention cases, i.e. *Type of legal intervention*

### 3. The TRANSPORT MODULE

This module was to be completed for transport-related injuries. At the time of writing, there were four data elements in this module:

- *Mode of transport for injured patient*
- *Mode of transport of counterpart*
- *User*
- *Context*

More information on this can be found in Appendix 1, as well as in Appendix 4.

## 1.3 Testing of the ICECI

As with most existing injury classifications, such as the ICD Chapter XX, the draft ICECI has not been evaluated in any formal or systematic way. Particularly, the ICECI Data Dictionary and user instructions have not been tested to determine the extent to which different users will select the same codes when faced with the same case information (i.e. inter-observer reliability), nor agreement between coding by the same person at different times (intra-observer reliability). Also, there has been no investigation of the extent to which characterisation of cases by users of the ICECI accords with ‘gold standard’ characterisation of the same cases, as determined by a reference group (i.e. criterion validity). Variations in coding between countries have also not been considered.

During 1999, the WGISM undertook to evaluate the June 1999 draft of the ICECI. Because there was no budget (except for what participating organisations contributed) the basic principle of the project was to be practical and to make use of existing knowledge, experience and willingness to participate in the testing. This meant that the testing was broken down into smaller parts, so that organisations and individuals could participate in various parts of the testing (or all if they chose to).

Originally the testing of ICECI was to consist of three parts, i.e. evaluation of the classification of the data elements (Chapter 3); appraisal of the glossary (Chapter 5); and testing of the mapping between ICECI and ICD-10.

By July 1999, when the testing of the ICECI started, the nature of the technical relationship between ICD and ICECI was still unresolved, even though several proposals were put forward in order to encourage discussion around the topic and several important developments took place.<sup>1</sup> Therefore, ICECI-ICD compatibility was not addressed in the first phase of the ICECI testing. The testing of Chapters 3 and 5 of the ICECI involved three parts:

- Review of the ICECI by persons experienced in injury surveillance and epidemiology (i.e. content validation);
- Field testing of the ICECI in emergency department settings; and
- Coding of case scenarios using the ICECI.

The reviews and field testing were organised by the Consumer Safety Institute (CSI) in the Netherlands. The case scenario testing was coordinated by the AIHW National Injury Surveillance Unit (NISU) in Australia.

This report concerns the case scenario testing. Section 2 gives the aim of the case scenario testing, followed by the Methods section. Section 4 presents the findings, Section 5 the discussion, and Section 6 the Recommendations. Section 7 (References) and Section 8 (Appendices) follow.

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<sup>1</sup> In October 1999 the Heads of the WHO Collaborating Centres in Health Classification of Diseases met in Cardiff, Wales. There seemed to be general support for the view that a review of ICD coverage of external causes is timely. The possibility that the ICD section dealing with external causes might be replaced, if there is a suitable successor, was raised. Therefore, the still unanswered question about compatibility between ICD and ICECI broadened to the greater issue of whether ICECI could replace ICD. Compatibility in order to ensure time series became only part of the evaluation process of the ICECI. The way forward in this regard was discussed at the meeting of the ICECI Technical Group in March 2000. Another meeting to take the matter further took place in September 2000.

The sort of testing and data analysis described in this report is unusual and novel. We are not aware of any such testing being done on any version of the ICD. As such the methods we present are steps towards producing evidence-based classifications.

## 2 Aim

The purpose of the case scenario testing was to provide initial empirical evidence of the performance of the draft ICECI as an instrument for injury surveillance. This evidence is intended to be a guide to the further development of the classification, and to provide insights into the strengths and limitations of the instrument.

The specific objective of the case scenario testing was to use a Test Set of 100 case summaries to measure criterion validity (taking a reference group coding as the standard) and inter-observer reliability among volunteers knowledgeable about health coding.

# 3 Methods

This project consisted of the development and dissemination of a test set of case scenarios (together with the draft ICECI and instructions) to volunteer testers, followed by analysis of responses and reporting of the findings.

## 3.1 The test set of case scenarios

The Test Set comprised 100 scenarios (Appendix 2a), each with its own coding form (Appendix 2b).

The case summaries were selected from more than 350 real case summaries provided by various members of the WGISM. These case summaries were volunteered by Lee Annest and colleagues (US), Susan Mackenzie (Canada ), as well as James Harrison and Malinda Steenkamp (Australia). No personal identifying information was provided to the authors and care was taken to ensure that information identifying a person, or which might do so, was not included in the scenarios.

Many of the scenarios in the Test Set were designed to test specific issues judged to be of great importance and/or likely to be troublesome, e.g. ‘injury’ case inclusion (Table 1). Others were more characteristic of cases that might be seen in emergency departments. (It is recognised that patterns of injury vary widely, hence this set should not be taken as strictly representative of any particular setting.)

**Table 1 : Some features of the test set of case scenarios**

Specific topics covered by case summary	No. of scenarios*
Case inclusion/exclusion	12
Self-inflicted injury	16
Interpersonal violence	24
Work-related injury	25
Sports-related injury	10
Traffic injury	19
Unintentional injury	66

*\* Total will not add up to 100 as some scenarios concerned more than one topic.*

## 3.2 Participants

Participants were sought among people known to have received copies of the draft ICECI. Volunteers were also solicited through relevant Internet lists (i.e. injury-1@wvnvm.wvnet.edu and advice-users@listserv.cdc.gov); and by personal communication with appropriate individuals.

The target case number and other characteristics of the study group were not determined. For any given test of reliability, the larger the sample the smaller the confidence interval around the estimated coefficient of reliability. Typically, case numbers of 200 or 300 are recommended. However, there were no resources to recruit such case numbers and all respondents participated on a voluntary basis.

A total of 35 organisations (i.e. 51 individuals) volunteered to participate in the case scenario testing. At the end of December 1999, a total of 27 organisations (i.e. 39 individuals) had completed the testing and 32 test sets were received. Table 2 shows the countries from which participants originated.<sup>2</sup>

**Table 2: Countries where participants resided**

Country	No. of organisations	No. of participants
Australia	9	10
Canada	4	7
Switzerland	2	2
USA	2	2
UK	2	3
New Zealand	1	2
South Africa	1	2
Trinidad	1	1
Thailand	1	1
India	1	1
Israel	1	2
Greece	1	4
Norway	1	1
<b>TOTAL</b>	<b>27</b>	<b>39</b>

Some 31 individuals completed a questionnaire about themselves as part of the testing (see Appendix 3). Of the participants who completed the questionnaire, 14 had done some coding in the past. Also, 16 participants were involved with coding at the time of testing. Table 3 provides more information.

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<sup>2</sup> So far the ICECI is only available in English and the testing language was English.

**Table 3: Information about participants in the case scenario testing**

Information	No. of participants*	
<u>Process of coding case scenarios</u>		
Coded scenarios on own - no collaboration with anyone else		17
Coded scenarios by collaborating with colleagues		14
<u>Special field(s) of interest/work</u>		
Home and leisure activities		9
Traffic injuries		13
Sports injuries		12
Work-related injuries		7
Interpersonal violence injuries		8
Suicide		4
Injury epidemiology		17
Injury surveillance		14
Coding – using specialised injury classifications		8
Coding – using general health classifications		8
Health care		9
Other areas		1
<u>Participants' knowledge about existing classifications</u>		
	<i>Somewhat familiar</i>	<i>Currently using</i>
ICD, i.e. any version	28	22
EHLASS	7	4
CHIRRP	6	2
NDS-IS	2	1
NOMESCO	8	6
UEDDS	1	0
NEISS	3	0
Other (including NISPP, AIS, etc)	5	4

\* Except for the 'process of coding the case scenarios', these figures will not necessarily add up to 31 as individuals could be counted under more than one category, e.g. some individuals had knowledge of more than one classification system.



### 3.3 The testing process

Volunteers who had agreed to participate were provided with a kit that consisted of:

- A **test set** comprising 100 case summaries with appropriate coding forms (Appendices 2a and 2b).
- The **Data Dictionary** (Chapter 3 – Appendix 1) and **Glossary** (Chapter 5) of the June 1999 draft of the ICECI.
- A **guide** on how to use the ICECI for case scenario testing (Appendix 4).
- An **index** for the data element *Object/substance producing injury*.
- A **questionnaire** regarding some personal information about the participant (Appendix 3).

Where possible the kit was provided in electronic form, generally via the Internet. Participants were asked to complete a coding form for each case in the test set.

Some completed test sets were returned electronically, but the majority was sent by regular mail. By December 1999, 32 completed test sets were received. These have been entered into an Excel file, with a spreadsheet dedicated to each of the various data elements (see Appendix 5 for example).

Not all participants completed all 100 case scenarios (Table 4). This was mainly due to time constraints on the part of participants.

**Table 4: Number of case scenarios completed by participants**

No. of case scenarios completed	No. of participants
100	23
75	1
73	1
50	3
47	1
37	1
30	1
25	1
<b>Total</b>	<b>32</b>

A number of participants included additional letters with comments. The comments in these letters were combined with comments appearing in the completed test sets.

### 3.4 The 'gold standard'

To determine criterion validity, a 'gold standard' was compiled. This was done by a reference group consisting of Lee Annest, Yvette Holder, Susan Mackenzie, John Horan, Anneke Bloemhof and the authors.

The initial process involved 50 case scenarios and asked that each participant code all of the first 20 scenarios. A proposed 'gold standard' or User Guide, constructed by the authors, was provided for these 20 vignettes. Participants were also asked to provide codes for some (at least ten) of the remaining scenarios. No User Guide was provided for these, but afterwards one was constructed by one of the authors (MS) to serve as a 'gold standard' for the analysis of the remaining 30 scenarios. All five coders coded all of the first 20 vignettes. Two coders coded all of the remaining scenarios, while the others coded some of the case scenarios, as was suggested. The 50 case scenarios were divided into two groups:

1. 30 scenarios where there was a high per cent of agreement between coders or where disagreements arose from ambiguities in the scenario;
2. 20 scenarios where there was a high proportion of disagreement between coders.

The ambiguities in the actual scenarios were addressed. The remaining 20 scenarios warranted further attention as there were more fundamental disagreements on the inclusion of cases and/or on the application of codes - especially in regard to *Mechanism* and *Object/Substance*. Another 50 scenarios were compiled and sent out to the reference group. Some members coded these scenarios and the responses were again analysed.

In June 1999, a face-to-face discussion was held at the International Collaborative Initiative on Injury Statistics Symposium, held in Washington, D.C. At this meeting the problems regarding the gold standard were discussed and resolved.

The major problems were in regard to the data elements *Mechanism of injury* and *Object/substance producing the injury*. The ICECI requires that the mechanism/object most immediately responsible for the bodily lesion/damage be coded. However, injury practitioners were of the opinion that this does not serve intervention needs. The solution was to allow for the coding of two mechanisms and three objects.

After the June 1999 meeting, a final gold standard was compiled by one of the authors (MS) and sent out to the reference group. Comments were received and some discussion took place electronically, whereafter the gold standard was finalised.

*(Both the gold standard and the test set of 100 case scenarios used in this testing phase are available from RCIS. Please see contact details in the front of the report or in Appendix 7.)*

## 3.5 Analysis

The analysis consisted of two approaches, i.e. a qualitative examination of feedback and a quantitative analysis of the data. Analysis was done on the data elements in the Core module, as well as on those contained in the Violence and Transport modules.

### 3.5.1 Quantitative analysis

The essence of this analysis was to compare the ability of different coders to classify the 100 case scenarios according to the draft ICECI. The aim was therefore to measure agreement rather than to measure association.

The simplest approach to assessing agreement is to look at how many exact agreements were observed. We calculated the per cent of agreement between gold standard codes and the codes provided by the respondents. This was done separately for the data elements by calculating the agreement between every reference code and the relevant code provided by each coder for each case scenario. The overall per cent agreement for each data element was also calculated. (See Appendix 5)

As shown in Appendix 1, the data elements *Intent*, *Mechanism*, *Object*, *Place*, *Relationship with perpetrator*, *Context of assault*, and *Precipitating mechanism* had two levels of codes. Per cent agreement was calculated for both levels for these data elements. ('Full' code refers to the finest level of the code available and 'First level' code refers to the aggregated level of code.)

We also calculated the proportion of correct classifications for individual coders, as shown in Table 9. An overall proportion of correct classification was also calculated (see Tables 8 and 9). Overall expected proportions of correct classifications were also determined and are shown in Table 8.

There are, however, two weaknesses with the simple calculation of agreement discussed above, i.e. it does not take account of where in the table the agreement was, and some agreement between coders would be expected by chance (Altman 1993).

A further method to explore agreement is to calculate Kappa coefficients for agreement between individual test sets and reference codes. This takes into account the expected agreement by chance.

The Kappa statistic is designed to measure the proportion of times two observers agree in their classification of subjects, after making allowance for the fact that two observers who made their classifications at random could still agree on some subjects by chance alone. In the present context it is desired to calculate a Kappa-like statistic to measure the agreement between a particular coder and the gold standard across a set of test cases. Taking the gold standard classifications as fixed it is then necessary to formulate a model for random classification in order to calculate the agreement expected by chance alone.

For the classification schemes under consideration there are often very large numbers of possible categories of which a relatively small number typically account for the majority of cases. This is true both in the mix of cases encountered in practice and also in the test cases. Since the coders have experience in the mix of cases encountered it is not realistic to consider a random model in which all classifications are equally likely to be chosen.

For this reason it was decided to use a model for chance agreement in which each coder is given only the overall number and types of cases for each data element. The expected agreement by chance is then calculated on the basis that the coder randomly allocates the cases to categories according to the given overall distribution. The rationale for this model is that it allows for the background information that the coders have on the incidence of the various categories. However, it must also be said that the model is not derived from the actual experiment since the coders were not given information on the overall numbers in each category. Moreover, if the coders were given only that information, then random allocation would not be an optimal strategy with respect to the expected number of correct classifications. Despite these reservations, we believe the model described above to be more appropriate than that which gives equal probability to all categories and we are not aware of more realistic model that would overcome the abovementioned difficulties.

It could be argued that, if anything, such a model provides for a higher level of background knowledge than could be expected from real coders in practice. The implication is that resulting Kappa scores may actually be lower than they might have been under the null model where coders essentially assigned codes totally in random.

Kappa coefficients should be interpreted with caution. Kappa has a maximum of 1.00 when agreement is perfect, whereas a value of zero indicates no agreement better than chance. Negative values show worse than chance agreement. A guideline for interpreting values between 0 and 1 is shown in Table 5.

**Table 5: Strength of agreement**

Value of Kappa	Strength of agreement
<0.20	Poor
0.21 – 0.40	Fair
0.41 – 0.60	Moderate
0.61 – 0.80	Good
0.81 – 1.00	Very good

Source: Altman, 1993<sup>3</sup>

Altman (1993) warns that “[t]he reduction of the data to a single number inevitably yields an answer that is not terribly meaningful without examination of the table of frequencies. In practice, any value of Kappa below 0.5 will indicate poor agreement, although the degree of acceptable agreement must depend on the circumstances. There is no substitute for inspecting the table of frequencies, because many different tables will yield similar values of Kappa. ... It is important to remember that no value of Kappa can be regarded universally as indicating good agreement – statistics cannot provide a simple substitute for clinical judgement.”<sup>3</sup>

One weakness of the Kappa statistic is that it takes no account of the degree of disagreement – all disagreements are treated equally. There are other difficulties associated with the use and interpretation of Kappa. One problem is that the value of the Kappa statistic depends on the proportion of subjects in each category. Therefore, it is misleading to compare Kappa values from different studies where the prevalences of the categories differ. Another problem is that Kappa depends on the number of categories (Altman 1993). This is especially relevant for this study as the number of categories for the various data elements differ markedly. For example, the data element *Intent* has

<sup>3</sup> Altman D 1993. Practical Statistics for Medical Research. London: Chapman & Hall.

eight first level categories and 30 second level categories, Mechanism has about 50 first level codes and more than more than 100 second level codes.

Despite these limitations, we have used a 'Kappa statistic' approach to devise summary 'Kappa' scores for the different data elements in order to interpret the data in a meaningful way. These scores were calculated by using the overall proportions of correct classifications together with the overall expected proportions of correct classifications (Table 8).

We are not sure that this is the best way to proceed and have not come across any references in this regard. However, it is quite likely that future replicas of this study will yield other expected proportions of correct classifications. The summary statistics shown in Table 8 will enable comparison between this study and possible future studies.

### 3.5.2 Qualitative analysis

The qualitative approach consisted of two approaches.

The first step was to combine comments on the ICECI from various sources. These were the remarks in the test sets (as completed by each participant or group of participants), letters written by the participants, and observation of one of the authors (MS) of how participants completed the test sets. These were compiled for each case scenario (see example in Appendix 5). All comments were then collated in tables for the various data elements. The comments were reviewed and recommendations made. (See Section 4.2.1)

In order to better understand how and why coders chose specific codes, the case scenario test sets were also reviewed qualitatively. This was done by first of all looking at the scenarios in numerical sequence and then compiling comments on the way a scenario was completed by all coders. After reviewing the first 20 scenarios it was apparent that this method did not provide any new information after about ten scenarios. Another approach was then used. For each data element, one of the authors (MS) identified those scenarios with a low per cent of agreement with the gold standard <sup>4</sup> and considered these in greater depth.

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<sup>4</sup> 'Low' per cent agreement was interpreted to mean an agreement of 30% or less, as identified from the spreadsheets described in Appendix 5.

# 4 Results

## 4.1 Quantitative analysis

Overall, coders achieved nearly 70% agreement with the gold standard, but the per cent agreement for the violence modules was around 63% (Table 6).

**Table 6 : Per cent agreement for the ICECI data elements without considering the role of chance**

Data element	% Agreement: Full code	No. of coding categories	% Agreement: First level <sup>(a)</sup>	No. of coding categories
<b>Core data elements</b>				
Intent	78.9%	26	84.4%	8
Direct Mechanism	54.3%	99	61.2%	52
Contributing Mechanism	47.4% (69%) <sup>(b)</sup>	99	58.8%	52
Direct Object	52.3%	364	64.9%	22
Contributing Object 1	57.5% (63%) <sup>(b)</sup>	364	64.5%	22
Contributing Object 2 <sup>(c)</sup>	91.3% (89%) <sup>(b)</sup>	364	91.3%	22
Place	69.9%	73	78.6%	14
Activity	91.0%	13	..	..
Alcohol use	90.5%	4	..	..
Other psychoactive drugs	87.4%	4	..	..
<b>Overall for core data elements</b>	<b>73.6%</b>	<b>..</b>	<b>..</b>	<b>..</b>
<b>Violence module</b>				
Relationship between victim and perpetrator	57.6% (88%) <sup>(b)</sup>	42	66.4%	10
Context for assault	55.5% (82%) <sup>(b)</sup>	34	60.8%	7
Precipitating factors	74.0% (78%) <sup>(b)</sup>	18	78.1%	15
Legal intervention <sup>(c)</sup>	88.9% (73%) <sup>(b)</sup>	10	..	..
<b>Overall for violence module</b>	<b>62.5%</b>	<b>..</b>	<b>..</b>	<b>..</b>
<b>Transport module</b>				
Mode of transport of injured person	71.9% (83%) <sup>(b)</sup>	24	..	..
Counterpart	63.3% (80%) <sup>(b)</sup>	11	..	..
User	75.2% (86%) <sup>(b)</sup>	6	..	..
Context of transport	70.4% (86%) <sup>(b)</sup>	5	..	..
<b>Overall for transport module</b>	<b>70.3%</b>	<b>..</b>	<b>..</b>	<b>..</b>
<b>Overall for all data elements</b>	<b>68.0%</b>	<b>..</b>	<b>..</b>	<b>..</b>

(a) Only one level of code available for Activity, Alcohol and Other psychoactive drugs, legal intervention and the data elements in the Transport module

(b) For these data elements, coders did not have to provide a code for all case scenarios, i.e. not all case scenarios involved more than one mechanism or more than one object/substance. Also, only some vignettes were related to violence or transport. The per cent in parentheses indicates the proportion of cases where coders provided a code when the gold standard indicated that one should be provided.

(c) Per cent refers to less than 5 cases.

Agreement with the gold standard was generally better for those data elements with smaller numbers of categories (Table 6). The role of the number of coding categories was also illustrated by the fact that the per cent agreement was better for first level codes than for full level codes.<sup>5</sup>

For the core data elements, the highest per cent of agreement was seen for *Activity* (with thirteen code categories); *Alcohol use* (four code categories); and *Other psychoactive drug use* (four categories). *Mechanism* and *Object/Substance*, which had much larger numbers of codes, had lower per cent agreement, but the coding of these data elements was complicated by the fact that two mechanisms and three objects/substance codes could be recorded. The case scenarios often involved injuries that occurred because of a sequence of events and the choice as to which mechanism or object/substance to code was clearly problematic.

For the additional violence and transport modules, agreement was also highest for data elements with smaller numbers of coding categories, i.e. for *Legal intervention* and *Precipitating factors*. However, the per cent agreement for these data elements was influenced by the smaller number of case scenarios that asked for the additional modules to be coded (e.g. there were also only four cases in the test set that asked for *Legal intervention* to be coded) and coding options for *Relationship between victim and perpetrator*, *Context of assault*, and *Counterpart* were sometimes unclear and not mutually exclusive. In contrast, case scenarios dealing with suicide were very straightforward and coding was uncomplicated for these scenarios.

As indicated in the Methods section, the simple per cent agreement presented in Table 6 took no account of where in the data the agreement was. Moreover, some agreement between the coders would be expected by chance. Therefore, a more reasonable assessment of agreement was to consider the agreement in excess of the expected chance agreement, as calculated by the method described earlier (Table 7).

**Table 7 : Per cent of chance agreement expected for the core ICECI data elements**

Data element	% Agreement	
	Full code	First level <sup>(a)</sup>
Intent	38.8% (SD 0.8%)	39.8% (SD 0.8%)
Direct Mechanism	5.0% (SD 0.4%)	14.5% (SD 0.6%)
Contributing Mechanism	53.7 (SD 0.75%)	..
Direct Object	4.3% (SD 0.4%)	7.7% (SD 5.0%)
Contributing Object 1	33.2% (SD 0.74%)	..
Place	14.3% (SD 0.6%)	15.6% (SD 0.7%)
Activity	11.0% (SD 0.6%)	..
Alcohol use	71.6% (SD 0.7%)	..
Other psychoactive drugs	85.0% (SD 0.5%)	..

(a) Only one level of code available for Activity, Alcohol and Other psychoactive drugs

(b) Chance agreement was not calculated for Contributing Object 2 because only 3 case scenarios asked for this data element to be coded according to the gold standard. The chance agreement for the data elements in the violence and transport module were also not calculated for a similar reason.

<sup>5</sup> The per cent agreement for *Contributing object 2* is the same for both levels, but there were only three scenarios where the gold standard asked for a third object.

The per cent of agreement we would expect by chance are low (Table 7), except for *Other psychoactive drugs*, and to a lesser extent *Alcohol use*. The chance agreement expected for *Direct mechanism* and *Direct Object* is exceptionally low, even for first level codes.

The per cent of agreement for participants presented in Table 6 was of a higher order than the chance agreement presented in Table 7, except for *Contributing Mechanism*. (This was influenced by the fact that, according to the gold standard, only 21 scenarios asked for the *Contributing Mechanism* to be coded.) The conclusion is that the coders generally seemed to do better than would be expected by chance. However, it is not clear whether the percentages achieved by the coders in this study would be acceptable for surveillance purposes, or whether the results obtained in this study are repeatable. Furthermore, it should be noted that this study was based on a draft version of ICECI. Revisions prior to completion of version 1.0, in part prompted by this study, should reduce some of the difficulties experienced by users of the draft version.

Further assessment of the agreement was done by calculating Kappa scores (Table 8). If we consider Kappa scores of less than 0.5 as indicating poor agreement, then it is clear that all coders had poor agreement with the gold standard for the data elements *Contributing Mechanism* and *Contributing Object 1*. *Other psychoactive drug use*, *Direct Object* and *Direct Mechanism* also seemed to pose some problems for the coders. For *Alcohol use*, 21 of the 32 coders had poor agreement with the gold standard.

As noted above, however, cutoff points for the interpretation of Kappa scores are simply conventions and account should be taken of the circumstances in which they are used. When 0.20 is taken as the cutoff point for indicating poor agreement *Contributing Mechanism* was most problematic for the coders. That is, 28 of the 32 coders had Kappa scores of 0.20 or lower. For *Contributing Object 1*, 9 out of 32 had poor agreement, and for *Other psychoactive drug use*, 8 coders had scores indicating poor agreement.

*Intent*, *Place*, *Activity* and *Alcohol use* seemed to be less problematic for the coders and they recorded scores which indicated better agreement. That is, for each of these data elements, 20 or more coders had good agreement with the gold standard, i.e. they had Kappa scores of between 0.61 and 0.80 (Table 8).

Coder 9 had poor agreement for 8 out of the 9 scores presented in Table 8. Another (Coder 10) had poor agreement for six data elements. These coders were two of the four coders from less-resourced countries. Coder 10 was from a non-English speaking background. Neither of these two coders completed the participant questionnaire, but from personal contact with them it seemed as if they were not experienced coders. Rather, they were emergency department (ED) personnel. This may indicate problems in regard to using the ICECI in the very settings it was meant to be used, especially if busy ED staff are tasked with coding duties.

The summary 'Kappa' score calculated for the various data elements (Table 8) indicated poor agreement (according to Table 5) for *Contributing Mechanism* and *Other psychoactive drug use*, fair agreement for *Contributing Object 1*; moderate agreement for *Direct Mechanism* and *Direct Object*; and good agreement for *Intent*, *Place*, *Activity*, and *Alcohol use* (although these scores were all at the lower end of the 'good' scale).



The difference between '*Direct*' and '*Contributing*' *Mechanism* and *Object* is marked. In each instance, agreement in excess of chance was better for the *Direct* data element than for the *Contributing* one. As noted above, this is partly attributable to the fact that the gold standard required Contributing codes only for some scenarios. Another issue may be that the selection of one among several candidate 'underlying' mechanisms and objects/substances in a consistent manner is a complex task. As with the coding of 'underlying cause of death' explicit rules must be developed and applied if standardised coding is to be done. These rules have yet to be developed for ICECI.

**Table 8: Kappa scores for each coder in comparison with the gold standard<sup>6</sup>**

Coder	Intent	Direct Mech.	Contr. Mech.	Direct Object	Contr. Object 1	Place	Activity	Alcohol	Other drugs
1	0.71	0.44	0.04	0.43	0.34	0.66	0.63	0.75	0.33
2	0.72	0.42	0.06	0.51	0.13	0.73	0.69	0.75	0.40
3	0.50	0.53	0.03	0.33	0.29	0.54	0.55	0.44	-0.17
4	0.48	0.53	-0.21	0.56	0.22	0.60	0.60	0.65	0.45
5	0.69	0.53	0.39	0.47	0.29	0.75	0.61	0.89	0.33
6	0.50	0.43	0.06	0.55	0.35	0.48	0.58	0.70	0.20
7	0.73	0.53	0.02	0.56	0.29	0.72	0.65	0.89	0.60
8	0.51	0.46	0.35	0.39	0.08	0.35	0.63	0.81	0.63
9	0.49	0.44	0.08	0.36	0.32	0.37	0.45	0.58	0.07
10	0.65	0.45	0.04	0.47	0.16	0.70	0.63	-1.99	-5.07
11	0.57	0.35	-0.31	0.41	0.03	0.65	0.62	0.72	0.13
12	0.69	0.61	0.15	0.56	0.34	0.75	0.76	0.82	0.47
13	0.72	0.58	0.15	0.61	0.38	0.75	0.78	0.82	0.47
14	0.67	0.48	0.04	0.58	0.23	0.76	0.75	0.82	0.60
15	0.79	0.58	0.30	0.50	0.35	0.72	0.78	0.79	0.40
16	0.68	0.52	0.13	0.46	0.40	0.55	0.56	0.54	0.06
17	0.61	0.53	-0.02	0.49	0.11	0.73	0.71	0.65	0.47
18	0.46	0.45	0.01	0.43	0.41	0.58	0.74	0.89	0.58
19	0.68	0.51	0.08	0.45	0.34	0.77	0.69	0.79	0.27
20	0.69	0.66	-0.15	0.62	0.20	0.70	0.59	0.79	0.60
21	0.69	0.47	-0.09	0.58	0.31	0.64	0.73	0.82	0.80
22	0.73	0.48	0.19	0.45	0.26	0.70	0.60	0.75	0.60
23	0.60	0.44	-0.05	0.49	0.02	0.64	0.64	0.75	0.27
24	0.71	0.55	0.15	0.52	0.20	0.41	0.66	0.65	0.20
25	0.73	0.54	0.17	0.56	0.19	0.66	0.79	0.82	0.53
26	0.69	0.56	0.04	0.47	0.38	0.51	0.56	0.65	0.13
27	0.68	0.57	0.11	0.50	0.40	0.50	0.54	0.65	0.13
28	0.68	0.45	0.15	0.54	0.34	0.56	0.69	0.75	0.33
29	0.58	0.51	0.19	0.57	0.22	0.60	0.78	0.51	0.33
30	0.60	0.52	-0.02	0.51	0.19	0.71	0.64	0.68	0.53
31	0.66	0.58	0.32	0.50	0.35	0.60	0.57	0.72	0.59
32	0.61	0.54	0.17	0.55	0.45	0.79	0.69	0.72	0.60
Overall prop. of correct classification	0.79	0.53	0.58	0.52	0.52	0.68	0.69	0.89	0.87
Overall expected prop. Of correct classification	0.39	0.05	0.54	0.04	0.33	0.14	0.11	0.72	0.85
'Kappa statistic'	0.65	0.50	0.08	0.49	0.27	0.63	0.65	0.62	0.13

System missing values were taken into account in the calculation of the Kappa scores.

Cells shaded in grey indicate Kappa scores below 0.5 and outlined cells show Kappa statistics less than or equal to 0.20. Both are used to indicate low agreement. Negative Kappa values indicate worse than chance agreement.

The expected number of correct classifications was calculated on the basis of a random permutation of the gold standard. The overall expected values are shown at the bottom of the table to help interpret Kappa. Each data element was analysed separately. Structural missing values were taken account of – this was important for analysis of the contributing mechanism and contributing object elements.

<sup>6</sup> Neither the Kappa scores, nor the proportions of correct classifications for the second *Contributing object/substance* were included in this table, because of small numbers involved.

Table 9 shows the proportion of correct classifications for individual coders, e.g. Coder 1 coded 82% of the Intent data element correctly for the 100 scenarios completed by her, Coder 2 coded 83% of Intent correctly for the scenarios completed by her, etc.

For most of the coders, the highest proportion of correct classification was for *Alcohol use*. Most coders had proportions higher than the average for all coders. Most coders also had proportions of 0.80 or more for *Other psychoactive drug use* and *Intent*.

The one exception in this regard is Coder 10. This coder has very low proportions for both *Alcohol use* and *Other psychoactive drug use*. The explanation lies in a systematic ‘error’. In cases where substance use was unlikely, e.g. in childhood injuries, the gold standard coded the relevant data elements to ‘1 – No information available’ if no mention was made of alcohol use. However, Coder 10 coded the same scenarios to ‘4 – No (substance use)’.

*Mechanism* and *Object/Substance* again seemed to be the most problematic. Except for Coder 10, all coders had the lowest proportion of correct classifications for either one of the two *Mechanism* data elements or for one of the *Object/Substance* data elements.

Based on either the Kappa scores or the proportion of correct classifications, there is substantial variation in the correct classification rates across coders for a given data element, as well across data elements for a given rater.

However, there are few strong correlations between correct classification rates for two different data elements. The strongest correlation (0.987) is between *Other psychoactive drug use* and *Alcohol use*. This reduces to 0.784 if Coder No.10 is omitted. All other correlations are less than 0.55 with the majority less than 0.2.

This suggests that there is no strong tendency for coders who do well on one dimension to do well on other dimensions. This was investigated further using principal components analysis. It was found that the first principal component accounted for only 40.9% of the total variance. This reinforces the claim that coder performance across the dimensions is genuinely multi-dimensional. That is, there are not simply uniformly good and uniformly bad coders.

Moreover, coders 2, 6, 7, 8, 9, 10, 22, 24, and 28 were from non-English speaking backgrounds and Coders 8, 9, 10, 20 and 22 were from less-resourced countries. Except for Coder 10, there did not seem to be notable differences between these overall proportions of correct classifications for these coders and those from less-resourced countries or those from English-speaking backgrounds.

**Table 9: Proportions of correct classifications by coder and data element<sup>7</sup>**

Coder	Intent	Direct Mech.	Contr. Mech.	Direct Object	Contr. Object 1	Place	Activity	Alcohol	Other drugs	Overall
1	0.82	0.47	0.56	0.45	0.56	0.71	0.67	0.93	0.90	0.67
2	0.83	0.44	0.57	0.54	0.42	0.77	0.72	0.93	0.91	0.68
3 <sup>(a)</sup>	0.71	0.55	0.56	0.36	0.49	0.61	0.59	0.85	0.84	0.62
4 <sup>(b)</sup>	0.64	0.56	0.44	0.56	0.64	0.64	0.68	0.88	0.88	0.66
5	0.81	0.55	0.72	0.49	0.53	0.78	0.65	0.97	0.90	0.71
6	0.69	0.46	0.57	0.56	0.57	0.55	0.62	0.89	0.84	0.64
7	0.83	0.55	0.55	0.58	0.53	0.76	0.69	0.94	0.91	0.70
8 <sup>(b)</sup>	0.70	0.50	0.60	0.43	0.37	0.47	0.67	0.93	0.93	0.62
9	0.68	0.47	0.58	0.39	0.55	0.46	0.51	0.88	0.86	0.60
10	0.78	0.48	0.58	0.48	0.43	0.73	0.66	0.14	0.09	0.49
11	0.73	0.37	0.41	0.43	0.36	0.68	0.66	0.91	0.87	0.60
12	0.81	0.63	0.61	0.58	0.56	0.78	0.79	0.95	0.92	0.74
13	0.83	0.61	0.61	0.61	0.59	0.77	0.81	0.95	0.92	0.74
14	0.80	0.51	0.56	0.58	0.49	0.79	0.77	0.94	0.93	0.71
15	0.87	0.60	0.68	0.52	0.57	0.76	0.80	0.94	0.91	0.74
16	0.80	0.54	0.60	0.48	0.60	0.61	0.61	0.85	0.84	0.66
17 <sup>(a)</sup>	0.80	0.56	0.52	0.52	0.38	0.78	0.74	0.90	0.92	0.68
18 <sup>(a)</sup>	0.69	0.46	0.56	0.46	0.60	0.65	0.76	0.97	0.94	0.68
19	0.80	0.53	0.58	0.46	0.56	0.80	0.72	0.94	0.89	0.70
20 <sup>(a)</sup>	0.84	0.68	0.46	0.64	0.44	0.76	0.62	0.94	0.94	0.70
21	0.81	0.50	0.50	0.59	0.54	0.69	0.76	0.95	0.97	0.70
22	0.83	0.50	0.63	0.47	0.51	0.74	0.64	0.93	0.94	0.69
23	0.75	0.47	0.52	0.51	0.35	0.69	0.68	0.93	0.89	0.64
24	0.82	0.57	0.61	0.54	0.47	0.49	0.70	0.90	0.88	0.66
25	0.83	0.56	0.62	0.58	0.46	0.71	0.81	0.95	0.93	0.72
26	0.81	0.58	0.56	0.49	0.59	0.58	0.60	0.90	0.86	0.66
27	0.80	0.59	0.59	0.52	0.60	0.57	0.58	0.90	0.86	0.67
28	0.80	0.48	0.61	0.55	0.56	0.62	0.72	0.93	0.90	0.69
29 <sup>(a)</sup>	0.78	0.54	0.62	0.56	0.46	0.68	0.80	0.86	0.82	0.68
30	0.75	0.54	0.53	0.53	0.46	0.73	0.68	0.91	0.93	0.67
31 <sup>(a)</sup>	0.81	0.61	0.61	0.53	0.58	0.67	0.61	0.92	0.89	0.69
32 <sup>(b)</sup>	0.79	0.53	0.62	0.57	0.64	0.83	0.72	0.91	0.94	0.73
<b>Overall</b>	<b>0.79</b>	<b>0.53</b>	<b>0.58</b>	<b>0.52</b>	<b>0.52</b>	<b>0.68</b>	<b>0.69</b>	<b>0.89</b>	<b>0.87</b>	

Grey shaded cells indicate highest proportion of correct classification for a particular respondent and outlined cells show lowest proportion of correct classifications for each coder.

(a) Respondent coded between 49 and 76 case scenarios - also see Table 4

(b) Respondent coded less than 50 case scenarios - also see Table 4

<sup>7</sup> Neither the Kappa scores, nor the proportions of correct classifications for the second *Contributing object/substance* were included in this table, because of small numbers involved.

## 4.2 Qualitative analysis

### 4.2.1 Review of comments received

The comments below were compiled from remarks recorded in the test sets, from accompanying letters sent by the participants, as well as from reviewing the coding of the case scenarios.

#### General comments

Table 10 : General comments regarding the ICECI

Comments
We strongly agree on the need for and usefulness of the ICECI.
My overall impression of the ICECI is positive. The problems listed all relate to details, not the overall structure, which I thought was good.
Generally I found the dictionary to be clear and useful.
ICECI is considerably better than ICD-9 or ICD-10.
One needs a certain insight of trauma in order to code these case scenarios appropriately and I do not think that clerical/administrative staff could do so with the necessary reliability. On the other hand, the long times it took me to complete even the last number of case scenarios were such that your doctors or registered nurses working in emergency departments of developing countries will not undertake the codings, especially at busy times. This particular problem of the ICD is not being solved in ICECI.
One would hope that the one large shortcoming of the ICECI system (as it appears from the case scenarios) could be addressed in one or other way: the system appears to be purely causally/epidemiologically orientated and is focussed only on the incidence and prevention of injuries, while not capturing any data aimed at the planning and design of trauma services whatsoever. I submit that that it will be most important to build such data characters into your systems somewhere. By not doing so data would be of very little relevance and utility to those designing properly tiered trauma services on local, regional and national basis.
The ICD systems never really caught on with clinical services outside of the USA and a few other countries. The main reasons were that it did not capture service orientated data, that looking up and entering of codes were time consuming and that certain types of trauma were covered awkwardly and others inadequately. Judging from what I have had before me, I fear that the ICECI is unlikely to solve those shortcomings and that it will also not enjoy popularity among those delivering acute trauma care. I would also be delighted if this stumbling block to wide employment of the system could be addressed, eased or removed.
There needed to be more definitions and examples for each criteria, rather than just inclusion and exclusion lists (e.g. Contacting static object, i.e. hitting a surface after a fall, etc). I tried to look up some of the criteria in the glossary of terms, but the explanations did not help in defining the use of the codes, e.g. there was no definition for legal system encounters under 'precipitating factors for suicide'.
The codes should be written in the code guide with the zeros in order to know exactly how to write them.
Some of the participants indicated that the coding was sometimes problematic because English was not their first language.
The order of direct and contributing <i>Mechanism</i> and objects could possibly be reversed.
A geographic denominator would be of great value to your data clients involved with service design. This is a consideration of high significance to developing countries. Once it has been decided to include such data capture, it begs the further questions of what, where and why?
Developing countries are precisely the places where the ICD system enjoyed least credibility or acceptance. This is doubly tragic, as it is in precisely those countries where virtually no trauma data capture occurs. For that reason I would consider it particularly important that ICECI should pay particular and close attention to the needs of the Columbias and the sub-Sahara of the world.

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## Comments

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The basic format and the main variables contained within the classification were logical and the main purpose of these well defined, but generally I found the classification difficult to use because of the following reasons:

- Lack of codes available, especially for direct *Mechanism* of injury and direct object, e.g. hanging/attempted hanging – only code available was strangling.
- Understanding the concept of how to code direct *Mechanism* of injury and lack of guidelines for some of the main variables. For example, in ICD-10-AM, if there is an overdose, it is assumed to be accidental unless the intent is specified. Some coding standards are required to ensure consistency of application of the codes.
- There were a lot of terms that did not have examples, and it was necessary to make assumptions in order to allocate a code. This applied to several criteria e.g. object, direct *Mechanism*. Some examples are falls, knife wounds.
- The layout of the data dictionary was difficult to interpret, because the same codes were listed several times in varying degrees of specificity. First of all there were the basic codes, then with added definitions, then with inclusion and exclusion criteria. It would have been more helpful to list the codes once, with all relevant annotations, because depending on how well or far you looked, it was easy to miss specific codes.

There was also a lack of 'not applicable' codes, for example in the mode of transport section where the victim may not have had a mode of transport.

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In some scenarios (e.g. Scenario 55) there is information about the perpetrator in violence. Some comments:

The psychiatric illness and non-compliance with medication as a precursor has been unable to be coded.

Not sure where/how to code for husband not taking medication.

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The appropriateness and practicality (and therefore the ultimate value) of the ICECI will be depend, to a large extent, on the sophistication and infrastructure that individual countries have.

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## Inclusion and exclusion criteria

It is clear that the inclusion and exclusion criteria need further development and clarification (Table 11).

**Table 11 : Comments and recommendations regarding the inclusion and exclusion criteria used in the case scenario testing**

Comments	Discussion and Recommendations
Cases of second attendance do not pose a problem - all coders agreed not to include scenarios where a patient reattended (Scenario 4).	None.
Some coders excluded cases where there was a delay between the injury event and the attendance for treatment, even if it was for a first attendance.	Clarification is needed about the inclusion of cases where there is a time lag between:
There also seemed to be uncertainty regarding cases where there was a time lag between the injury event and the manifestation of an injury.	<ul style="list-style-type: none"> <li>the injury event and attendance at an ED;</li> <li>the injury event and the manifestation of the injury.</li> </ul>
Many of my comments relate to the definition of injury. Consideration should be given to countries where access to health care is delayed by more than 'just a few minutes'.	This is especially important for low income countries where the lag between injury and treatment can be great.
Where the word 'suspected injury' appeared in the case scenario, some coders did not include the case. It seems as if 'events that might have produced an injury' are not clearly understood.	Clarify 'event that might have produced an injury' and give examples.
Some people excluded poisonings from injury. Other cases were also excluded, e.g. foreign bodies in ears/noses/throats, etc.	Clarify the definition of injury and make special reference to 'special cases' such as poisonings, foreign bodies in ears/noses/throats, etc. Give examples
For example, Scenario 16 – heroin injection, undetermined intent: 'By definition not an injury. The injection puncture is not the problem, the heroin effects are not energy/mechanical in nature'.	
There were problems with adverse effects. Most coders did not consider the relevant case (Scenario 5) as an injury.	Obviously this area needs some attention. One starting point would be to provide a definition of adverse effects, as well as guidelines on which cases should be included together with examples of how to code such cases.
What is the definition of adverse effects?	Further discussion with people working in the field is clearly necessary.
Distinction between acute and non-acute overexertion needs clarification	Clarify the definition of injury and make special reference to overexertion. Clarify the distinction between acute and non-acute.
The case inclusions and exclusions meet our needs very well.	None.
Scenarios 71 and 73 contain two related, but separate injury events to the same patient. In such cases, I believe two separate forms should be completed (Note: I have no problem with multiple injuries from one injury event being coded on the same form).	Clarify how two separate injury events should be handled. (See guide for use for <i>Mechanism</i> , etc)
Scenario 18: 'It is not easy to choose <i>Mechanism</i> /object when there are two or more different injuries. Should we choose the major lesion to answer the questionnaire? It is sometimes difficult and always subjective to select the most severe injury.'	
No evidence that the spider bite caused an injury (i.e. that it exceeded the threshold of physiologic tolerance). Therefore, not coded. (Scenario 8?)	Special cases such as poisonings, bites and stings, etc need specific attention and further discussion.

## Intent

**Table 12 : Comments and recommendations regarding *Intent***

Comments	Discussion and Recommendations
<b>Definition:</b> Injuries inflicted by the self or by other persons with the aim of injuring or killing. This includes violent attacks against the will of the victim or consensual violence.	
<b>Synonymous name:</b> Manner of injury	
Does the definition of intent refer to the victim of the crime or the overall circumstances?	Clarify.
<b>Context:</b> <p>The assessed role of human intent in the occurrence of an injury has consequences for the type of care given to a patient, and for the prevention of recurrence. For example, the clinical and preventive approach to a person presenting with an injury is likely to differ according to whether it is thought to be self inflicted or unintentional.</p> <p>Attacks by animals are being regarded as unintentional.</p> <p>Social and legal sensitivities often apply to intentional injuries. Information on the subject tends to share this sensitivity. For this and other reasons health care facilities are not ideal places to collect information on the intentionality of injury. When possible, linkage between data collected in health care facilities and data collected by law enforcement agencies should be favoured. However, when this is not possible, health care staff could collect the information. In that case, it is important to maintain strict confidentiality and to provide specific training to personnel involved with the data.</p> <p>Intent has long been given the primary role in the structure of the ICD 'external causes' classification. In practice, determination of the intent of injury cases is often difficult, for conceptual and practical reasons.</p>	
No specific comments received.	
<b>General comments on classification scheme for Intent</b>	
It is a worry that coders use 'Other specified' instead of 'Unspecified' when unsure about Intent, e.g. coders tended to use '38' instead of '39'.	Prepare specific guidelines re use of Codes 38 and 39. Give examples.
Legal intervention: the definition does not make it clear to include injuries 'sustained', not only those 'inflicted'.	Change definition to read: 'Includes injuries inflicted <b>and/or sustained</b> by law-enforcing agents'
Legal intervention: there seems to be some uncertainty as to whether 'citizen's arrest' is included in this category.	Clarify definition and maybe give examples. It may also help to by the explanation in bullet format so that the latter part of the explanation is more noticeable.
What is the difference between the codes '7 – Undetermined' and '99 – Intent not specified'?	Clarify.
In sports injuries where there is a certain extent of wilful intent (e.g. to grab a ball, tackle an opponent), is this unintentional?	Write some guidelines on how to deal with sports injuries, especially when there may be intent to hurt.
What about cases (e.g. ice hockey) where there is an intent to eliminate your opponent by hurting him? Is this intentional?	
Is touching and not molesting classed as sexual assault (Scenario 17)? It is not really easy to know how 'sexual' the assault is in such a case, I think maltreatment is the most appropriate choice.	Should be discussed by testing group and guidelines provided.
How does one code 'self-defence'? (Scenario 20)	Should be discussed and guidelines provided.
How does one code high-risk unintentional acts? (Scenarios 29, 40 and 46)	Should be discussed and guidelines provided.
Guidelines are needed on how to treat 'intent' in young children (Scenarios 34, 96 and 100)	Should be discussed and guidelines provided.
There seems to be uncertainty on how to code a case where someone was injured as a bystander to a violence incident. (Scen 59)	Should be discussed and guidelines provided.
It is not during a legal intervention, even if the dog is owned by the security agency. But when considering this opinion, we 'lose' data about this untypical situation. (Scenario 82)	Should be discussed by testing group and guidelines provided.
A fall in a Doctor's room is a medical misadventure. (Scen 98)	Should be discussed and guidelines provided.



## Mechanism

The coding of *Mechanism* elicited many comments as it apparently presented many problems (Table 13). One major problem relates to choosing the appropriate mechanism when more than one is involved in the incident.

**Table 13 : Comments and recommendations regarding *Mechanism***

Comments	Discussion and Recommendations
<b>Definition:</b> The way in which injury was sustained. How the person was hurt.	
Definition needs improvement perhaps as circumstantial information surrounding the injury.	What does this comment mean?
Very comprehensive in all aspects.	The definition seems to be OK, but how it is operationalised needs to be addressed - see the section on 'Guide to use'
<b>Context:</b>	
Physical trauma results from the transfer of energy, in one form or another, to the tissues that are damaged. The process whereby this occurs may be described as the 'mechanism of injury.' This data item enables many mechanisms of injury to be coded.	
Language may be new for those without injury experience, e.g. from an abuse background.	<p>Is there a way in which we can address this? Recommendation: Consult with relevant people outside injury field.</p> <p>How do we identify these people? Recommendation: Ask that testing group members and testers to identify particular individuals and approach them for input.</p> <p>There is a number of definitions of injury in the glossary, but it may serve 'to set the scene' if there is an upfront declaration of where we are coming from.</p> <p>Recommendation: That the definition of injury be restated at the beginning of Chapter 3.</p>
Change 'that are' into 'and causes'	Suggested change:
'Transfer of energy' is not as clear as 'acute exposure to energy'. Does not seem to apply to injuries resulting from absences of energy, e.g. suffocation, or even for poisonings.	Physical injury results when human tissues are acutely exposed to energy, in one form or another, and sustain some form of damage. In some cases an injury results from an insufficiency of any of the vital elements (in drowning, strangulation, or freezing). The process whereby injury occurs may be described as the 'mechanism of injury'. More than one mechanism of injury may be coded.
Looks more like a definition than a context (and even then it is missing injuries from lack of vital substances)	Context seem to mean 'a designation or description of the application environment or discipline in which a name is applied or from which it originates.' (AIHW, 1999)
<b>Guide for use:</b>	
First select and code the mechanism that is most immediately and directly responsible for the trauma. This is the direct mechanism. If more than one mechanism is involved in the occurrence of an injury, then code the contributing mechanism next.	
<i>Example: A person falls from a ship into water, and then drowns. Code the direct mechanism as drowning/immersion and the contributing mechanism as a fall from a height.</i>	
There was a lot of uncertainty around the direct mechanism and many comments were made on how it 'is often very difficult to determine' the contributing mechanism and there is 'uncertainty as to what to code'. For example:	<b>Guide for use:</b>
Where there is a direct cause for injury and a cause for the event (e.g. dog pushing, woman falling and getting hurt) should the dog appear in the story? (It is actually the fall that caused the injury, not the dog).	<p>Injuries are often the result of a sequence of events. We can distinguish between different types of mechanisms:</p> <ol style="list-style-type: none"> <li>1. The mechanism(s) that 'started' the injury event, ie the <b>PRECIPITATING MECHANISM</b></li> <li>2. The mechanism(s) causing the actual physical harm, ie the <b>DIRECT MECHANISM</b></li> <li>3. Other intervening or intermediate mechanisms</li> </ol>

Comments	Discussion and Recommendations
<p>Difficult to code mechanism: if fall is contributing mechanism in the majority of cases the fall is followed by contact with floor/ground (A1.2?).</p> <p>There may be coding dilemmas that are not addressed. When there is more than one mechanism, which gets coded as direct? (e.g. hit by a vehicle and fell/was thrown to the pavement coded as moving or static object [A1.1 or A1.2]? In such cases it may be difficult to tell exactly which caused the injury if not both.</p> <p>What does one do if there is more than one Direct mechanism?</p> <p>In some cases more than one trauma and each trauma due to more than one mechanism. How to code this?</p> <p>To be coded first is to means to have more priority if only one code is allowed?</p>	<p>involved in the injury event</p> <p>In some cases these mechanisms are the same and therefore selecting the mechanism is straightforward, eg cutting one's finger while preparing food. Here cutting one's finger is both the <b>precipitating</b> and the <b>direct</b> mechanism.</p> <p>Other situations are often more complex. For example, an event resulting in injury might begin when slipping on a wet floor, injury being sustained when the person's head strikes a nearby basin while falling, resulting in a contusion. Here the slipping on a wet floor is the <b>precipitating</b> mechanism and the contact with the basin is the <b>direct</b> mechanism. Another example is where a dog jumped up at a person, the person fell and hit his head against a nearby basin. Here the dog jumping up is the <b>precipitating</b> mechanism and the contact with the basin is the <b>direct</b> mechanism. The fall is an intermediate mechanism involved in the injury event.</p> <p>The situation is further complicated because a combination of direct mechanisms may cause more than one injury. For example, the mechanisms of injuries sustained in a car crash may be a poorly defined combination of striking moving or static objects, deceleration, etc.</p> <p>The ICECI asks for two mechanisms to be coded, ie the <b>precipitating</b> mechanism and the <b>direct</b> mechanism.</p> <p><b>Please follow these guidelines for coding "mechanism":</b></p> <ul style="list-style-type: none"> <li>• Select and code the mechanism where things started to go wrong, ie the <b>PRECIPITATING</b> mechanism.</li> <li>• Then select and code the mechanism most immediately and directly responsible for causing physical harm, ie the <b>DIRECT</b> mechanism.</li> <li>• If more than one <b>Precipitating</b> mechanism is involved, select the Precipitating and Direct mechanisms that resulted in the most severe injury.</li> <li>• If the injuries are of equal importance, select the Precipitating and Direct mechanisms of the injury mentioned first.</li> </ul>
<p>There should be sufficient information to know about (1) the object which was the cause of the injury and the action/activity related to it and (2) the energy involved in the causing of the injury</p> <p>More examples would help.</p> <p>The given example is very clear. Provide examples that are not so clear.</p>	<p>Clearly sufficient information is needed for the ICECI to be used efficiently. We should recognise the importance of having quality data from which to code.</p> <p>Recommendation: Address this issue in the chapters on injury surveillance methodology and implementation.</p> <p>Agree - choose appropriate examples from the case scenarios and/or include other examples. Which ones from case scenarios?</p> <p>Recommendation: That each member of testing group review case scenarios and put forward appropriate examples.</p>
General comments on classification scheme	
<p>Definitions are vague and there are not enough to choose from e.g. hanging, falls, stabbing injuries.</p>	<p>Review list of mechanisms and improve definitions.</p>
<p>It is too big. Suggestion 1: Select only 1 mechanism. Suggestion 2: make two lists, i.e. one for direct mechanism and one for contributing mechanism.</p>	<p>Changes to the layout may alleviate some of these problems. Will this be enough?</p> <p>Suggestion is NOT to make two lists – this will result in duplication.</p> <p>Recommendation: Update and change layout.</p>

Comments	Discussion and Recommendations
Categories with 'other specified' or 'unspecified' are not clear. Does this imply that the victim cannot describe the mechanism or that the practitioner cannot ascertain the mechanism?	Review mechanism codes.  As we understand it, it can mean both, but in most instances it will mean that the information was not available in the notes, i.e. the practitioner cannot ascertain the mechanism.
It may be useful to have a code for seizure/convulsion or pre-existing health or medical condition the former in mechanism and/or the latter in object to be used as contributing factors.	Should we consider adding another module, e.g. <b>Additional information.</b> This can have codes for 'Pre-existing medical condition', 'Patient used medication that might result in dizziness', 'No safety measures used', etc.
It would also be helpful that the correct code for the events that are in the exclusion criteria be given to prevent confusion.	Not sure what this comment means.
Food poisoning should be in details or a separate part, because it is very numerous	Food poisoning is not considered as an injury.
I found the coding options for interpersonal violence disappointing. It is, for instance, difficult to code 'assault by body parts' (kicking, fist blows, head butting, etc) appropriately. A2.1 is really suitable; however when one looks at the considerable number of alternatives under G1 (thermal) it is quite clear that the two situations are out of balance for a place like Cape Town.	Review list of mechanisms, paying specific attention to interpersonal violence.
The inclusion/exclusion criteria have not been updated to take into account the direct/contributing mechanism option. Some mechanisms that are directed to another mechanism in the exclusion criteria may be used as the contributing mechanism. (e.g. Perhaps A1.3 Struck by thrown or falling object could be contributing mechanism to such things as a large object falling and pinning someone A3.1 Pinching, crushing between as direct mechanism).	Update inclusion and exclusion criteria.
Should we still include codes for the sake of mapping to ICD-10 at three character level?	Should be discussed by testing group.
<b>Specific comments on codes in classification scheme</b>	
<b>Blunt force (A1 - A9)</b>	
I don't understand A1.5 – please provide more details and discrimination from other codes or provide some examples. We found difficult to understand when we can use the code A15 in the mechanism of injury.  Does this mean the injured person moved the object or that the person moved in front of the object? If the latter, would this include someone unknowingly running into the street in front of an oncoming car? What about someone being hit by the ball as they stepped forwards to try and catch it? This could get confused with A1.1 and A1.3.	Review list of codes.
Does code A1.6 Contacting animal: other means any type of contact with an animal (moving or not moving) other than a bite (C5)? Why is it here and not in the A2 grouping. Is A1.6 all contact with animals? They can be moving object too.	Review list of codes.
Is a kick = strike?	Review list of codes.
Options for 'crushing' injury of direct mechanism of injury are not well defined.  Add separate codes for crushing between objects / crushing between a person and object/ crushing between persons	Review list of codes.

Comments	Discussion and Recommendations
<p>Fall injuries presented many problems:</p> <p>Should the contact with e.g. the floor be coded (because this actually caused the injury) or should the fall be coded?</p> <p>Information about the height of a fall is often not available – perhaps a third category should be added, e.g. ‘height unspecified/unknown’?</p> <p>Which mechanism does ‘falling on stairs’ fall into?</p> <p>Need ‘pushed on same level’ category</p> <p>Does fall from bike come under ‘other fall’?</p>	<p>Need to include specific note on this in guideline.</p>
<b>Penetrating force (C1 - C9)</b>	
<p>It is not clear whether someone struck by an arrow would be coded to A1.4 or C2 or C8.</p>	<p>Review list of codes.</p>
<p>As far as penetrating lesions are considered, the options under C1 and C2 are also somewhat on the short side. One would certainly have liked to see an option such as ‘other sharp weapon or instrument’ to be Includes in order to accommodate objects like screwdrivers, bicycle spokes, sharpened reinforcing rod, etc. (i.e. when these are used as weapons).</p> <p>Cannot seem to code the contact with a knife as direct mechanism.</p>	<p>Mechanism refers to how the injury occurred and not to the type of weapon/object/instrument used. These are coded under object.</p>
<p>Codes C1-C3 ‘Excludes ..., cutting or puncturing due to explosion or firearm discharge (E1)’ directing such to E1 Struck by explosive blast but A1.4 Struck by projected object ‘Includes object projected by firearm (bullet)’.</p>	<p>Review list of codes.</p>
<p>What is the difference between C1 (cutting) and C2 (puncturing)? Which should be used for knife attack injuries? Difficult to differentiate between cutting/tearing and puncturing for a stab wound. How should a stab wound be coded?</p>	<p>Review list of codes.</p> <p>Specific guidelines re stab wounds: Unless otherwise specified, stab wounds coded as C2.</p>
<p>Need more discrimination about foreign body and cutting puncturing object.</p> <p>Difference between C3 and all others?</p> <p>Is a bullet/knife foreign body through skin?</p> <p>Include comment about exclusion of entry through eye or natural orifice</p> <p>Need to clarify. Is C3 used only when the foreign body is still within the body/skin or perhaps a lack of motion on the part of the object? Or does the puncture code (C2) refer to punctures that went deeper than the epidermis?</p> <p>What if the skin is not penetrated or pierced?</p>	<p>Review list of codes.</p>
<b>Thermal and radiant mechanisms (G1-G3)</b>	
<p>Could not code a child pulling a hot substance onto themselves (Scenario 28).</p>	
<b>Threats to breathing (J1-J9)</b>	
<p>We would like to see the word ‘hanging’ appear specifically in the coding structure. I do not believe the current categories accurately cover hanging (or attempted hanging). I have coded hanging as A5 (abrading, rubbing), a code that I am not really happy with.</p>	<p>Review list of codes.</p>
<p>Inhalation of smoke is a tricky one, because it could be interpreted as a threat to breathing.</p> <p>Could not find smoke inhalation in the list of codes.</p>	<p>Is smoke inhalation G1.1, i.e. contact with hot liquid or gases?</p>
<b>Poisoning by, exposure to chemical substances (N1-N9)</b>	
<p>What is the correct mechanism for ‘overdose’?</p>	<p>This will depend on route used, e.g. overdose paracetamol tablets will be ‘poisoning by solid substance’, whereas overdose of injected heroin will be ‘poisoning by liquid substance’</p>

Comments	Discussion and Recommendations
Category N4 needs more clarification. Need to define corrosion and give key words that may arise when corrosion is described.	Review list of codes.
Need a description of poisoning.	Review list of codes.
Cannot use 'poisoning' for contributing mechanism because it does not include intentional overdose. Specific code for drug overdose is missing	Intent is a separate axis and should not be included in mechanism.
<b>Physical over-exertion (P1-P9)</b>	
What is the difference between acute and non-acute overexertion? I could not find it in the glossary.	Add definition of acute and non-acute to glossary.
<b>Other and unspecified mechanisms of injury (U1 -U9)</b>	
What does mechanism U4 (Travel and motion) mean? Travel and motion may be too general to be informative as a mechanism of injury. I would prefer 'struck by moving object' or 'struck while moving towards object'. Is motion sickness Included?	Looked at ICD-10, but could not get any guidelines.
We would like to see a coding option for 'suction injury', i.e. the type of injury which sometimes occurs when a person (often a child) is sucked into the skimmer box of a swimming pool filtration system. Alternatively, people sometimes drown where their hair is sucked into the suction points of a spa. We don't think that the mechanism category 'air pressure' is sufficient to cover these situations.	Review list of codes.
No code for force of hurricane. Also, no code for hurricane	Should we add codes under U7?
<b>Other specific comments</b>	
In road traffic injuries it is difficult to code the mechanism, when details provided is what happened to the person vs what happened to the vehicle.	This is problematic. May need to include examples on how to deal with motor vehicle crashes.
Don't know how to code direct mechanism in a car crash. Is it the contact with moving object? Should there be a separate code for this.	
Not able to code 'rollover' in motor vehicle crash – pity that it cannot be coded.	
No code to indicate the hazard of cutting down a tree (Scenario 43).	This will depend on specific mechanism involved, e.g. being hit by falling object (A1.3), etc.
I thought there was a code for being hit in the eye—couldn't find it.	There is a code for a foreign object entering through eye, otherwise the mechanism should be coded to the relevant code, e.g. stabbing, etc. Body part injured should be identified in the diagnosis codes and not in the mechanism codes.
I'm assuming that the diagnosis of rape was confirmed medically. And it's not clear that the accused was innocent or not. (With reference Scenario 67)	
As with all cases of injury, there are legal implications. Evidence of rape must be clear, as the evidence (including history taking and documentation) will bring to bear on the Court's decision. Coded as attempted rape.	
Is there a way to code for the effects of high velocity?	
Should we add a specific category for lifting heavy object?	There is a code for this - P1.
There is a lack of specific codes for sports injuries.	Is this part of a proposed sports module?

## Object

*Object/substance* also presented many problems and elicited many comments. A large proportion of these centred around choosing the direct or contributing objects.

**Table 14 : Comments and recommendations regarding *Object/substance***

Comments	Discussion and Recommendations
<b>Definition:</b> Objects, substances and phenomena which can produce injury.	
I have problem with that the concept 'phenomena' is included in the definition. To me, substance or object is a real thing, you can touch it, a phenomenon is to me also abstract.	It may be that phenomena appears more abstract, but how would you characterise flame?
I also have problem with 'produce'. To me, produce is active, and I understand it much more narrow than the word some of us have used before: 'involved in' What about the objects involved in the accident, before the injury? They are very important with regard to prevention. (12)	However, phenomena, as described in the 'context' of the object, actually refers to mechanisms, i.e. electricity and radiation.
Change definition into: Objects, .... which can be the media of energy causing injury. (This to avoid misunderstanding that object cause the injury while actually it is energy. (24)	Recommendation: Change definition to read  'Objects and substances which are involved in the injury event.'
Definition that is presented requires context for clarity (28)	
Change the word producing injury to implicated in injury. Most injury is caused by combinations and/or interactions of multiple factors. Asking for a single cause or product may result in a reluctance to report or name a factor. (11)	
Why not : objects, substances and phenomena which produced injury	
<b>Context:</b>	
Physical trauma results from the transfer of energy, in one form or another, to the tissues that are damaged. The process whereby this occurs may be described as the 'mechanism of injury.' The energy is conveyed by means of objects (e.g. a car), substances (e.g. hot water) and other phenomena of the physical world (e.g. electricity, radiation). This data item enables many objects and substances to be coded.	
Should use injury not trauma to avoid confusion (24)	Suggested change:
-This is similar to the context for Mechanism of Injury with the addition of a comment about objects. Still looks like a definition. From the definition of context at the beginning of the chapter, I have the impression that the context explains why a data element is used/necessary.(49	The mechanism of an injury (see p ??) is conveyed by means of objects (e.g. a car, a heater, a knife) or substances (e.g. hot water, flames). More than one object/substance may be involved in the injury event. Up to three objects/substances may be coded.
<b>Guide for use:</b>	
First select and code the object that is most immediately and directly responsible for the trauma. This is the direct object. If more than one object is involved in the occurrence of an injury, then code up to two contributing objects.	
<i>Example: A person falls from a passenger ship into the sea, and then drowns. Code the primary object as sea (natural body of water) and contributing object 1 as passenger ship. There is no contributing object 2 specified.</i>	
Here the word 'involved' is used, which I think is very good. May be it should be underlined a bit more that the products (objects) involved in the accident are important to register.	<b>Guide for use:</b>
The example given I find not so well. The example should more be 'product-related', e.g.: 'Slippery shoes, fell down staircase and cut himself in a glassdoor which broke. Objects are: Glassdoor, staircase, shoe. (12)	
A maltreatment example makes it more complete (17)	Injuries are often the result of a sequence of events. We can distinguish between different types of objects/substances:
There was a lot of uncertainty around the direct object and many comments were made on how it was often very difficult to determine the contributing object. For example:	
Where there is a direct cause for injury and a cause for the event (e.g. dog pushing, woman falling and getting hurt) should the dog appear in the story? (It is actually the fall that caused the injury, not the dog)	<ol style="list-style-type: none"><li>4. The object/substance(s) involved at the start of the injury event, i.e. the <b>PRECIPITATING</b> object</li><li>5. Other object/substance(s) involved in the injury event<ul style="list-style-type: none"><li>• The object/substances(s) producing the physical harm, i.e. the <b>DIRECT</b> object</li></ul></li></ol>
What about the object involved in the accident, often more	



Comments	Discussion and Recommendations
<p>important to detect than the object involved in the injury. (12)</p> <p>For assignment of the direct code, which part do you code? I think this is open to interpretation.</p> <p>This was especially apparent for motor vehicle crashes:</p> <p>I had difficulty in determining the direct and contributing objects. [In Scenario 3] the car actually caused the injuries, but the accident was caused by a motorcycle crashing into the car. Difficult to desegregate injuries and accident circumstances.</p> <p>Should code the first object, which initiated the train of events. According to the given example, the fall from the ship should be coded first. The given guide for use will not provide valid information for prevention and control. (24)</p> <p>How to choose which is the direct object? e.g. a child bumps against a table (head is injured bloody) and falls down with the face hitting the floor (Teeth is broke, lip is torn) then he is burn because the thermos on the table drops and is broken (51)</p> <p>Needs more and varied examples (20)</p> <p>Give second example that had a direct (or primary) object and 2 contributing objects to give coders a clear example of a more complex situation (15)</p>	<p>In other cases the situation may be more complex because more than one object/substance is involved. For example, an event resulting in injury might begin when slipping on a wet floor, injury being sustained when the person's head strikes a nearby basin while falling. The basin is the object producing the physical injury (i.e. the <b>DIRECT object</b>), but the wet floor is involved at the start of the injury event (i.e. the <b>PRECIPITATING object</b>). Another example is where a dog jumped up at a person, causing the person to slip on the wet floor, which caused the person to hit his head against a nearby basin. Here the dog jumping up is the <b>PRECIPITATING object</b> and the contact with the basin is the <b>DIRECT object</b>. The wet floor is another object involved in the injury event.</p> <p>The situation is further complicated because a combination of <b>PRECIPITATING</b> objects may cause more than one injury. For example, the objects causing injuries in a car crash may include the steering wheel, the dashboard and the side door, etc.</p> <p>The ICECI asks for three objects to be coded, i.e. the <b>PRECIPITATING</b> object, the <b>DIRECT</b> object and <b>another contributing object</b>.</p> <p><b>Please follow these guidelines for coding "object":</b></p> <ul style="list-style-type: none"> <li>• Select and code the object where things started to go wrong, i.e. the <b>PRECIPITATING</b> object.</li> <li>• Then select and code the object most immediately and directly responsible for causing physical harm, i.e. the <b>DIRECT</b> object.</li> <li>• If more than one <b>PRECIPITATING</b> object is involved, select the <b>PRECIPITATING</b> and <b>DIRECT</b> objects that resulted in the more severe injury.</li> <li>• If the injuries are of equal importance, select the <b>PRECIPITATING</b> and <b>DIRECT</b> objects of the injury mentioned first.</li> </ul>
<b>General comments on classification scheme:</b>	
<p>For our coding case scenarios we use more objects for sporting and recreational equipment such as toys. In addition we use more terms for food and drink, for surface and equipment for babies and kids (39)</p> <p>Lacks sport/recreation equipment</p> <p>Need separate code for agricultural instruments (5)</p>	<p>Review list of codes.</p> <p>Ask testers to provide additional codes where appropriate.</p>
<p>There is no cross referencing between terms i.e. it would be useful, for example, to be able to look up 'drug – narcotic' as well as 'narcotic' in the index.</p> <p>In general, the object codes need much more cross-referencing.</p> <p>The inclusion/exclusion criteria have not been updated to take into account the direct/contributing objects option. Some objects that are directed to another object in the exclusion criteria may be used as the contributing object.</p>	<p>Improve cross-referencing in list of codes.</p> <p>It would be useful to have an index for object. There is a basic one available already (created for the case scenario testing), but this clearly needs more work, specifically in regard to cross referencing.</p>
<p>I often had to refer to the numerical code list to ensure I was in the correct 'area' if a term was not initially found e.g. box. Improvements in the specificity of the index are required.</p>	<p>Review list of codes. Some adaptation has been made, but further updating and elaboration of inclusion and exclusion criteria where necessary and appropriate are necessary.</p> <p>Index will help with this, but it may also be useful to add a short list of main codes at the beginning of the chapter just after 'Guide to use', as is done in the ICD, e.g.</p>

Comments	Discussion and Recommendations
	<p>A - Infant's or child's product</p> <p>B – Furnishing</p> <p>C - Household appliance</p> <p>D - Utensil or container, etc</p>
It may be useful to have a code for seizure/convulsion or pre-existing health or medical condition the former in mechanism and/or the latter in object to be used as contributing factors.(49)	Should we consider adding another module, e.g. <b>Additional information.</b> This can have codes for 'Pre-existing medical condition', 'Patient used medication that might result in dizziness', 'No safety measures used', etc. Otherwise we may suggest that an information system allows for narrative text, which can include extra information. Any other suggestions?
Overlapping between S, T, J (5)	Review list of codes.
What does NEC mean?	Include definition. Maybe add a list of abbreviations in front.
Think about combining R - Building, L – surface, and B furnishing somehow.	Improve inclusion and exclusion criteria. Review list of codes.
Floor can be coded under each of these dependent on how it is interpreted, e.g. carpeted floor, wooden floor, cement floor, floor unspecified.	
Swimming pool steps = R13 (swimming pool) or R55 (stairs)?	<p>Should we add the rule that 'Unless elsewhere specified and classified, objects/substances include their attachments'?</p> <p>Will this mean that swimming pool steps will be classified as swimming pool, even though stairs/steps are classified elsewhere?</p>
It would also be helpful that the correct code for the objects that are in the exclusion criteria be given to prevent confusion.	Not sure what this means.
The numbering structure of the codes needs to be revised.	Change coding scheme after final decision about coding structure has been made at the meetings in March 2000.
Most of the codes are geared towards a developed country context.	Ask relevant testers to review the list of codes and add additional codes where necessary.
<b>Specific comments regarding Object/substance codes:</b>	
<b>A - Infant's or child's product</b>	
We would like to the definition of A41 to read 'Flying fox/Track glide'. A track glide is a flying fox with a rigid channel to slide on, rather than a steel rope. Many playground injuries in Australia are caused by track glides.	Review list of codes.
Infant's products should include a category for 'changing table', i.e. a platform used to hold a baby while its nappies are being changed.	Review list of codes.
<b>C – Household appliance</b>	
Oven should be included	Review list of codes.
<b>D - Utensil or container</b>	
There are separate listings for object/substance on the type of knife (e.g. Kitchen knife = utensil, flick knife = weapon). In the scenarios given, it was never stated what type of knife was used, so I have coded according to intent (i.e. was the knife being used as a utensil or as a weapon).	Review list of codes.
Knife—difficult to code as a weapon or utensil.	
No term in the index for bottle opener.	Review list of codes.
Difficult to decide on category for bottle opener, looked at ICD-10 and followed their lead.	



Comments	Discussion and Recommendations
Where do you classify 'carton or box' as an object? no suitable code for box sugar.	Review list of codes.
I find it strange that utensils and containers are listed together. Does this mean that the same code must be used for a shipping container and also a potato peeler?	Any comments?
There is no code for 'heavy object' (Scenario 21)	Review list of codes.
Include bucket.	Review list of codes.
Include 'cup' under D21	Review list of codes.
<b>E – Land vehicles and means of transport</b>	
More detail in parts of car/vehicle which may have contributed to injury: e.g. Seatbelt, dashboard, airbag etc. (41)  Add parts of each vehicle	Should we include a section on Vehicle interior? For example:  <b>W - Vehicle interior or vehicle parts</b>  W01     Seatbelt W02     Airbag W03     Steering wheel W04     Dashboard W05     Windscreen  In most cases these would be the direct object and the car would be the contributing mechanism. Any comments?  If we do decide to include such a section, I suggest that it be placed directly after the current sections E or F. This would result in changing the current codes following these sections, but it seems quite likely that this will happen in any case.
There is no object for 'car door', and using 'car' as the object forces you then to complete the transport section. Mode of transport cannot be completed because there was no mode. The car door caused the injury but the car was not in motion. More codes needed to clarify event involving car door used as a weapon.  Car door isn't really a car but I couldn't figure out what it was Car door?? (not really a transport injury so can't use an E or F). E39 Car door – least fit.  How does one code the use of a car door as a weapon?	Any comments?  Suggestion: 'Unless elsewhere specified and classified, objects/substances include their attachments'. Thus car door attached to a vehicle would be coded as E39?
What about 'go-kart'?	See Section A
Train? No code.	Review list of codes.
Mode of transport and object/substance are confusing each other.	Review list of codes. For mode of transport. Can we make the categories the same, else we should explain why they are different.
<b>F – Special purpose vehicles, mobile machinery</b>	
Mountain bike is a popular activity and this kind of bike is often used in town. I think it could be added to the list of products because it is quite different from the typical bike.	Review list of codes.
<b>I – Sporting equipment</b>	
Sporting equipment should include a category for 'exercise/fitness equipment'	Review list of codes.
Could not find a code for football - there should be codes for specific sports.	Look at Australian sports data dictionary available on web.
It would be important to consider roller skates and skateboards separately. These products/activities are very different.	Review list of codes.
<b>J - Tool, machine, apparatus</b>	
No object for 'table saw'. I assume it was non-powered.	Review list of codes.

Comments	Discussion and Recommendations
<b>K- Animal, plant, person</b>	
What is the difference between K71 and K78	Review list of codes.
When do you use K71 and K72?	Review list of codes.
K72 is included only when self is sole object involved. Why is K71 not following the same pattern?	Review list of codes.
<b>L – Ground surface and conformations</b>	
Needs to be an object for 'ground' or type of ground, e.g. gravel, concrete, grass. This may impact on the severity of the injury.	Not sure what to do here. Overlaps with section S, and to some extent also with R. Review together with Section S.
Could not find a code for 'grass'.	
<b>M – Weather, natural disasters</b>	
The nearest code for tornado is storm.	Review list of codes.
Should weather, natural disasters, etc be under mechanism instead of object?	Review list of codes.
<b>O – Personal use item</b>	
Add reading glasses, contact lenses	Review list of codes.
<b>P - Drugs, pharmaceutical substances</b>	
See Page 30 in Data Dictionary - heroin is in both P33 and P39.	This is clearly a problematic section. Needs clarification, added examples, inclusion and exclusion, etc.
Could not find what drug 'ecstasy' was.	Recommendation: Consult widely with specialists in this field to assess current coding scheme.
Barbiturate can be used as an anti-epileptic or narcotic.	
The poisoning category is very inadequate.	
It would be good to have a code for poisoning by alcohol. Do you code it poison by chemical or liquid:	
Where would 'ecstasy' fit?	
Could not look up 'barbiturates' under 'object'.	
I may have miscoded several scenarios involving prescription drugs. I have no background in physiology or pharmacology, which limited my ability to code these.	
The category P99 could be called 'unspecified drug or medication'. Two categories beginning with other confuses.	
<b>Q- Chemical substance, non-pharmaceutical</b>	
Scenario 24 – potentially, excess chlorine can be considered a gas dissolved in water. No subterm for chlorine.	Review list of codes.
<b>R – Building, building component or fitting</b>	
Add the word 'fixture' to the main heading	Add word to heading.
Not sure how to code 'wall' - can be S19 if brick or S29 if wooden. There should be a distinct category for wall.	Review list of codes.
Not certain how to code lack of fluids.	This is part of mechanism.
<b>S- Material</b>	
No code for galvanised iron.	Code to S39.
What about hay?	Review list of codes.
Add ceramics: sheet, part, piece, etc. nec	Review list of codes.
No code for 'tile'	Review list of codes.
<b>T – Weapon</b>	

Comments	Discussion and Recommendations
Stab wounds – not always clear what the object was.	Addressed this issue under Section D.
Should we include a 'sharp object, unspecified'?	
If the direct mechanism was 'contact by projected object', e.g. bullet, there was no object for bullet, so I had to code gun.	Review list of codes.
There were no default codes if you did not know the specific type of object e.g. gun or knife (choice was utensil or weapon), but no 'not known' or 'not otherwise specified' code.	Provide guidelines on what to do if object is unknown
No subterm for gun NOS.	
<b><i>U – Medical/surgical devices and procedures</i></b>	
It may be useful to split Other specified and Unspecified medical devices	This section needs to be reviewed. No suggestions at this stage.
<b><i>V - Fire, flame, smoke</i></b>	
Need to be a clarification of 'controlled fire' and 'uncontrolled fire'	Review list of codes.
Every type of fire must need something as it sources e.g. coal, oil, gas etc. So this code should not be needed	Review list of codes.
V29 – does this include being burned by a candle flame, match or lighter	We need to add definitions for controlled and uncontrolled fire, as well as worked examples.
Recommendations additional context: ignition of extension cord or multiple rockets (sockets? AB)	
Difference between controlled and uncontrolled fire not clear	
V49 and V51 not clear	
<b><i>Miscellaneous object/substance</i></b>	
No term for handcuffs and other law enforcement equipment.	Review list of codes.
Difficult to code lava.	Review list of codes.
Z49 should be expanded to include cable. Difficult to find direct object code for cable.	Review list of codes.

## Place

There were no comments regarding the definition or guide of use of *Place*. Comments dealt mostly with specific codes and their use.

**Table 15 : Comments and recommendations regarding *Place***

Comments	Recommendations
This coding scheme is not well planned.	Review list of codes.
There was confusion around the use of the extra modules contained in the section on 'Place', i.e. on p 42-43, e.g.  'The definitions from 'relevant modules' in the back of the section were very confusing i.e. Further definitions and codes for type of home, indoor/outdoor extra digit I did not use them.'  'Nothing was said in the guide for use about how to use the 'Relevant module' on pp 42-43 in the data dictionary'  Extra digits very confusing.	Review list of codes and change to make more clear.
There were occasions where more than one place of occurrence could be relevant and quite useful to collect e.g. 'national park' could have been coded to 'public park' or to 'countryside'	Although this may be useful, it will not be practical to collect more than one place.
There were several comments on code '1 - Home':  There was no indication as to whether codes such as home meant the victim's home, or home in general  Code 1 = home. This presumably must be the injured person's home, but leaves no satisfactory category for examples such as Scenario 75, where the patient was injured at a friend's home.  Need a good place of occurrence code for someone else's home. Should it be coded as home even though it is not the home of the injured person?  The category 'home' should be further subdivided, at least to specify some of the major home-based locations relating to injury, e.g. 'home garden', 'home pool', 'home workshop/shed/garage', 'home bathroom'.	Review list of codes.
Not sure whether lighthouse is 'cultural' or 'non-cultural'. I chose cultural because of its historical significance.	Review list of codes.
Pubs/clubs would be better mentioned and separated from restaurants/café/ etc.  Is pub a recreational building 108 or 114?  What is the code for pub?	Review list of codes.
Horticultural farm: there is no satisfactory category at present. The closest available is plantation (code 092).	Review list of codes.
Scenario 23 – should this be kitchen, which would be 111 (Same as shop)?	Review list of codes. Adjust codes to clarify.
Childcare centres and education centres have very different intentions and having childcare centre in education seems inappropriate.	Review list of codes.
Park not defined.	Review list of codes.
Scenario 39 concerned a swimming pool at a hotel. Here are some comments:  Hotel in a commercial sense (114) would probably not have a pool. It is more like a motel so I coded to 108 (Other specified).  Code is 114, it is not a public swimming pool. I think it is really important to note injury cases that occurred in private swimming pools.  Some problem in deciding on appropriate code. It is not a swimming pool (53) and we don't know if it is a holiday resort (105).	Review list of codes.

Comments	Recommendations
<p>Scenario 41 involved a male in a cell while in police custody:</p> <p>It has been assumed that the place of occurrence is a police station, due to the person being in police custody.</p> <p>Assumed prison (of police station)</p> <p>Unsure of code – definition does not mention police cell. Difficult to find place of occurrence for police custody.</p>	<p>Review list of codes.</p>
<p>What is the difference between 'Roadway' (61) and 'Other specified street and Highway' (68)</p>	<p>Review list of codes.</p>
<p>I did not find the choice 'office'. It is perhaps important to consider it. No code to just code work.</p>	<p>Would not be practical to include 'office' or 'workplace' as code. These can be anywhere, e.g. in public building, etc.</p>
<p>Can 149 be used for safety structures at the edge of sporting areas?</p>	<p>Review list of codes.</p>
<p>What is the difference between an agriculture farm and a plantation?</p> <p>Unsure if plantation includes any horticultural farm.</p>	<p>Review list of codes.</p>
<p>There needs to be a code for ocean/sea.</p>	<p>Review list of codes.</p>
<p>No place of occurrence for 'Doctor's Surgery'.</p>	<p>Review list of codes.</p>

## Activity

As for *Place*, there were no comments on definition, context or guide for use for *Activity*, but there were input on individual codes and their application.

**Table 16 : Comments and recommendations regarding *Activity***

Comments	Recommendations
This was similar to ICD-10-am and there were very good guidelines and examples on the use of these	
I could not distinguish between 'nothing in particular - 11' and 'other specified'. I do not think that 'nothing in particular' is a very good subterm. It will end up being a dump code and is open to interpretation.	Review list of codes.
If there is no information, when do you use unspecified? Most could go to 'nothing in particular'.	Review list of codes.
The category 'exercising/fitness activity' should be added to distinguish from 'informal sport' and to expand the situations covered from simply jogging and roller-skating.	Review list of codes.
There is no satisfactory category for travelling as a pedestrian (e.g. scenarios 57, 59)	Review list of codes.
Swimming can be leisure/ organised sports/ unorganised sports.	Review list of codes.
Difficult to determine paid/unpaid work when working for a charity or non-profit organisation.	Review list of codes.
Scenarios 10:  I think it is important to know if an injury occurs during school hours (under school responsibility) or before/after school for all injuries occurring in a school setting.	Review list of codes.
Activity code in the context of self-inflicted injury would appear to be the act of inflicting injury to oneself.  Does there need to be an inclusion note for activity when self-harming?	Review list of codes.
Sometimes difficult to distinguish between types of sports (Scenario 15)	Review list of codes.
Scenario 19: young male fell off skateboard.  Can be 6 or 18 - 'Showing off' can be very important risk in teenagers.	Review list of codes.
What does 'other specified' activity include? Would fighting/brawling be considered as an 'other specified' activity or 'nothing in particular'?	Review list of codes.
Is there a separate category for child under supervision of parent/adult?	Review list of codes.
Need to define where crime is defined under activity codes. Is it 'other specified'?  If professional criminal is injured during crime - was he working?  Buying drugs—Unpaid work?	Review list of codes.
Activity code for intentional injuries appears redundant.	Review list of codes.
Maybe add choices: locked in or being prisoner of or ...	Review list of codes.
I think we must clearly separate real travel (with the will or objective to go from one place to another) from displacement.	Review list of codes.
Lunch time at school not considered 'educational' by one coder - 'not actively learning'	Review list of codes.
Would be good if we could put 'horse riding', but no code for this.	Review list of codes.
Scenario 52 - we do not know if we had to code the activity 18 or 8 because he injected the insulin himself.	Review list of codes.

Comments	Recommendations
We did not find a definition in the guide that would help us to code the school camp in the mountains.	Review list of codes.
<p>It would be interesting to get a more detailed list for school accidents:</p> <ul style="list-style-type: none"> <li>- class lessons</li> <li>- school sports</li> <li>- recreation, playground</li> <li>- others (camp, hand activities)</li> <li>- travel to and from school</li> </ul>	Review list of codes.
Difficult to determine between organised informal sport and leisure, no code to actually identify the type of activity such as rock climbing, we don't know why he was rockclimbing	Review list of codes.
<p>It would be relevant not to consider travel to/from school within school activities. Risk factors for injury are fundamentally different (no supervision, environmental characteristics, ...)</p> <p>Activity when injured: (Also scenario 57) Clarification is needed regarding travel as a pedestrian. Does this constitute travelling 'by any means of transport'? If it does, this should be explicitly stated, and 'Transport user' would require extra category—the role is specified but does not involve a vehicle.</p>	Review list of codes.

## Alcohol use and Other psychoactive drug use

In regard to alcohol use, comments mostly related to whether alcohol use referred to the injured person only and whether the coding of *Alcohol use* in children is relevant (Table 17).

**Table 17 : Comments and recommendations regarding *Alcohol use***

Comments	Recommendations
There needs to be a default for 'not applicable' i.e. Accident with a two year old child. The guidelines state that the alcohol/drug use is due to the victim, not the scenario. The guidelines for each of the options were contradictory. i.e. 4 – there is definite evidence of alcohol use, and the injured person did not use alcohol. How can this be when only the injured person has to have evidence of the acute use?	Agree that there should be a 'Not applicable' code, but disagree that this should apply to all children.
There should be a 'Not applicable' code for the alcohol and drug section, e.g. if a baby sustains an injury.	
For babies and young children, it is safe to assume there was no consumption of alcohol or drug, should the code than be 'No' or 'No information'	Disagree. There is no guarantee that children under 10 years of age do not use drugs. There are several high risk groups, e.g. street children where young kids engage in activities like glue sniffing, etc.
I believe we should complete the parts of alcohol and drug use only for people above one particular age (e.g. those aged more than 10 years). It is rare for children to use alcohol and drugs.	
It seems as if some coders coded the alcohol use by perpetrators as well. The coding of alcohol does not include the use of alcohol by the perpetrator.	Address this and clarify that alcohol use refers to injured party.
It is difficult when drug and alcohol use cause the injury. I have assumed here that they are the cause.	Review list of codes.
I didn't say it before—I think codes for alcohol and drug use are not suitable. I would choose: 1=yes 2=no 3=suspicion 9=no information.	Review list of codes.

Some comments were received on *Other psychoactive drug use* (Table 18)

**Table 18 : Comments and recommendations on *Other psychoactive drug use***

Comments	Recommendations
P 52, section 3.7.2 in the guide for use - the last sentence should say 'did not use psychoactive drug' (and not 'alcohol').	Change wording.
Need guidelines on what to do with this one when the Mechanism is 'Drug use'.	Review list of codes.
It is difficult for coders to know if the drugs were psychoactive or not. Need to provide a list for them.	Review list of codes.
Actually it may be very useful if we include the drugs which physicians suspected contributed to injuries, so that the study on association with certain medications can be done in future.	Review list of codes.



## Violence and Transport module

The comments for additional modules are presented in Tables 19 and 20.

**Table 19 : Comments regarding the *Violence* module**

Comments	Discussion and Recommendations
<b>General comments</b>	
Difficult to know how to indicate codes - is it 0.2.2 or 20.2 and .4 or 0.4?	Address coding structure of codes.
Coding structure unclear on this module.	
There is a strong need for codes to be included in situations where the perpetrator is linked with factors which has implications for the causes of injury, e.g. use of psychiatric drugs, alcohol use, etc.	Advise that a text field should be available for coding extra information.
<b>Relationship between victim and perpetrator</b>	
Codes are also needed for factors related to perpetrator's behaviour. Capture of data should not only be for the victim, these also have implications for planning, policy and remedial action.	Review list of codes.
If you selected maltreatment syndrome as the intent, there were no codes for maltreatment when you completed the relationship and context for assault.	Review list of codes.
The phrase 'relationship between victim and perpetrator' is not precise enough because it does not specify 'who' we are going to describe - the injured or the perpetrator? Please make more specific.	Review list of codes.
Scenario 20:  There should be a code for teacher.  Should be category for student.	Review list of codes.
Do we need a code for ex co-worker?	Review list of codes.
In some quarters the term 'victim' is unacceptable. Should we think of another word?	
Need a code for injured persons not involved in the situation. There should be a code in the context for assault for the cases that a person get injured by a gunshot by chance.	Review list of codes.
Code needed for undetermined	Review list of codes.
There is nothing under 'perpetrator' for violence cases for 'dog'.	Review list of codes.
Is response to a disturbance call (2.2-other) where 'demonstration' fits for 'type of legal interventions'?	Review list of codes.
Add customer and passenger	Review list of codes.
Coded 9. Friend—stranger?	Review list of codes.
Code for individual other than acquaintance will be useful as it is unclear as to the status fo the 'older boy'.	
Coded 08. Could be 5.9. Unclear if older boy known to victim	
In the relationship victim/perpetrator the code 6 is useless because if the perpetrator was the victim it would be coded as a legal intervention and the violence case would not be coded	Review list of codes.
<b>Context of assault</b>	
See Scenario 17:	Review list of codes.
Pinching a penis is not certainly sexual abuse.	
It is a question as to whether the abrasion on the penis signifies SEXUAL assault. It appears as if the bite on the cheek and pinch on penis are more by way of non-sexual maltreatment.	
What is the code for child abuse? Sexual abuse?	

Comments	Discussion and Recommendations
Can't find 'Not applicable'.	Review list of codes.
What is the distinction between 2.1 (burglary) and 2.2 (robbery)?	
I think work could be included in the list for context of assault. In our society, strains and troubles at work are expected to become more and more important.	Review list of codes.
Scenario 44:	Review list of codes.
Note that the injured was not involved in the conflict situation. Specific code needed for context as non-involved person/bystander. Specific codes need to be considered for similar situations.	
Context for poisoning not clear.	Review list of codes.
Alcohol as a masking factor? (Scenario 75)	
Demonstrations to be coded.	Review list of codes.
'Demonstration' unclear if that is civil disorder.	
Type of legal intervention: coded 6.0. Best fit? Or 2.2? (Scenario 9?)	
There is no code for 'unprovoked assault' as the 'context for assault'.	Review list of codes.
There is nothing under 'context for assault' for attacked/bitten by animal.	Review list of codes.
Coded 6.1.0—need one value for 'mobbing'.	Review list of codes.
For child injuries there may need to be a code for bullying.	
<b>Precipitating factors</b>	
The category 'assessment for social or worker's compensation benefits or other public income support' should be added. This is distinct from 'financial problems' and 'legal system encounters'.	Review list of codes.
As with violence, codes for context in which suicide was attempted would be useful.	Review list of codes.
The section on the sheet labelled suicide attempt should be renamed Intentional Self-harm as it appears to cover all self-harm whether suicide is intended or not.	Review list of codes.
'Precipitating' may not be appropriate since it should be short and aggravating problem. Reason for suicide or self-inflicted harm is preferred to 'precipitating' factor.	Maybe rename the category 'contributing'.
What about secondary precipitating factors?	Discuss with testing group.
Nowhere to type psychological abuse - only codes for physical or sexual abuse.	Review list of codes.
What is legal system encounters as a type of precipitating factor for suicide attempt? It is a more suitable option than psychiatric illness	Review list of codes.
<b>Type of legal interventions</b>	
There needs to be more definitions and examples for the use of these codes.	Review list of codes.
Please see definition on p 4 of the data dictionary which contradicts with p 61.	Change and correct.
? Code for civil arrest as opposed to police arrest	Review list of codes.
Unsure if code is 4. Or .4 for arrest situation.	Address coding structure.
Investigation of suspicious persons. Although it sounds more like an arrest situation (4), I did not code that because I don't think a security guard can arrest someone ... but I could be wrong about that.	Review list of codes.

**Table 20 : Comments and recommendations on the Transport module**

Comments	Recommendations
<b>General comments</b>	
Some injuries took place on the street/road or in a vehicle but could have occurred anywhere (no relation to traffic) - should we really fill in the transport module for these?	Review inclusion and exclusion criteria for transport module.
Need more definition for each of the criteria in the transport module.	
Mode of transport and counterpart are confusing if a one-vehicle accident.	Address this by giving examples.
The same categories should be used in mode and counterpart. The object transport list should be compatible with the mode of transport list and vice versa. Wheelchair is in one but not in the other. Wheelchairs are also motorised or non-motorised which is relevant. I think there is duplicate work when coding traffic injuries: object/mode of transport.	Current codes are used to enhance compatibility with ICD-10. Review.
Scenario 79: In such a case I think the transport module must not be filled, because it is not an issue of transport. This section is inappropriate for this question.	Review scenario.
Scenario 100: Since activity was 3, intent was 22, the transport module may not be applicable. Transport module doesn't make sense even though activity=3. Transport module doesn't make sense even though activity=1.	Review list of codes.
<b>Mode of transport</b>	
There needs to be a default code under mode of transport, for 'No transport'. The only options are other and unspecified and there were a few scenarios where the victim was not a pedestrian.	Review list of codes.
<b>Counterpart</b>	
Does not crash or collision involving a motor vehicle indicate that the 'counterpart' should be coded to 'other or unspecified counterpart'? (Scenario 83)	Review list of codes.
<b>User</b>	
There needs to be a default code under mode of transport, for 'No transport'. The only options are other and unspecified and there were a few scenarios where the victim was not a pedestrian.	Review list of codes.
Not sure of difference between person on the outside of the vehicle and bystander to the vehicle.	Review list of codes.
Specific codes needed for person(s) run over by vehicle - not necessarily a pedestrian. (Scenario 36) Is pedestrian the best code for 'sleeping on the ground and run over by vehicle'?	Review list of codes.
<b>Context</b>	
I was using ICD-10 definitions for traffic to help code this.	Review list of codes.
What does 'non-traffic' include? What is the difference between 'non-traffic' (1) and 'other specified context' (8)? Having no clear information from the guide, we had difficulty in coding the context of transport. We do not know the difference between 'non-traffic' (1) and 'vehicle is the site of the injury event' (3) We don't know which is the difference between the code 1 and 3 in the context of transport.	Review list of codes.
I still don't feel happy about the context definitions, they need to be more specific.	Review list of codes.

## 4.2.2 Review of coding of case scenarios

In order to understand why coders chose specific codes, the case scenario test sets were reviewed qualitatively. This emphasised the findings from Section 4.2.1.

*(See Appendix 2a for description of relevant scenarios mentioned below.)*

### General comments

The quantitative analysis (in Section 4.1.1) focussed on the per cent of agreement with the gold standard. Participants often provided codes that did not strictly agree with the gold standard, but which may have been valid alternatives. For example, Scenario 1 involved a person who hit her head against metal steps of a swimming pool. The gold standard specified that ‘*contact with a static object*’ (code A1.2) was the correct answer and 87% of coders agreed with this, but some coders gave the alternative code ‘*cutting, tearing*’ (code C1.0). This is a valid alternative, given that the injury sustained was a laceration.

Guidelines are needed on how to interpret ‘events that could result in an injury’ in the inclusion criteria. For example, in one scenario where an elderly man collapsed back into his chair, the gold standard indicated that case was not an injury and no codes were provided. Participants put arguments forward that there was the chance of the man being injured and that the case should be coded. In another scenario, a man fell from his bicycle and sustained no injuries. The gold standard did include this case and provided codes. Clearly there is a need to give guidance on how to distinguish between such cases.

An unexpected observation was that coders often used ‘other specified’ codes (e.g. ‘other specified fall’ when the correct code would have been ‘unspecified fall’. This was not limited to fall codes and seemed to be a recurring phenomenon for all data elements. Clear guidelines on when to use ‘other specified’ and ‘unspecified’ codes are needed.

The language used in the ICECI needs careful consideration, e.g. ‘pavement’ has different interpretations in various parts of the world – for some it means a pathway next to a road, for others it is the road.

Participants often did not provide any codes for a scenario if the word ‘suspected’ appeared, e.g. ‘suspected fracture’.

Scenario 80 dealt with a case of food poisoning, but many coders provided injury codes for this scenario. Inclusion and exclusion criteria should be more clearly stated in the front of the coding list.

## Intent

*(For intent, 15 out of the 100 scenarios had 30% or lower per cent agreement with the gold standard. These were specifically reviewed.)*

The case scenario test set had only one case scenario that dealt with iatrogenic injuries (Scenario 5), but it seems to be a problematic issue, particularly as to whether iatrogenic injuries should form part of ICECI. Although the 1999 ICECI testing phase did not focus on iatrogenic injuries to any great extent, the issue will need further discussion.

For this one case scenario on iatrogenic injury, 87% of the coders did not agree with the gold standard and only a few coders indicated that they considered the case to be adverse effects. Most indicated that it was unintentional, while others did not code it because they felt there was no evidence of an injury (the scenario mentioned that a head injury was suspected).

There were some uncertainties in regard to legal intervention, particularly about what is meant with 'legal person' and whether a citizen's arrest should be included. Also, the distinction between legal intervention and civil insurrection presented problems as seen in Scenario 44 (although this case deals with an unintentional injury) and Scenario 91.

Scenarios 10, 41 and 65 dealt with an intentional self-harm case where the exact nature of the self-harm was unknown, i.e. the person's intention to die was uncertain. Only a few coders used the code that indicated this uncertainty (i.e. 39 – Intentional self-harm, Intent not specified). Coders seemed to assume that it was a suicide attempt or they assumed that the code 'suicide attempt/parasuicide' included cases where the intention was not to kill oneself. It might be useful to state the definition of terms in the coding list and to give guidelines and examples.

Scenarios 16, 29, 59, 60 and 75 dealt with some of the cases of undetermined intent. These cases presented problems and coders assumed intent according to the scenario, e.g. in Scenario 16, most assumed that it was a suicide attempt, while in Scenario 29, most assumed it was unintentional. Examples and clearer guidelines on how to handle such cases will be useful.

The *Intent* classification of child abuse (Scenario 17) also seems to be a problem. Although there was only one scenario with an example of child abuse, it might be useful to place the definition of the relevant code (Maltreatment syndrome) in the list of codes and to give examples and more guidelines.

## Mechanism

*(For this data element, 32 of the scenarios had poor agreement, i.e. 30% or less.)*

This data element (as well as the one dealing with *Object/substance*) was the cause of much confusion. The identification of the Direct Mechanism is problematic. There was also much disagreement as to whether a *Contributing Mechanism* should be coded. Better guidelines are needed for distinguishing between mechanisms and then coding the 'correct' one.

As discussed above, an added problem was that coders often provided mechanism codes which were incorrect according to the gold standard, but for which a coherent case can be made.

With motor vehicle crashes the mechanism was not always clear and from the answers given it was obvious that coders formed their own picture of the (sequence of) events

and recorded codes according to this interpretation. This interpretation was obviously based on personal experience and was therefore specific to the individual and the culture of that person. This may remain a problem, even if guidelines are provided in order to ‘standardise’ interpretation.

Falls were problematic to code. Many participants coded the fall and not the contact with an object as the direct cause of the injury (the gold standard itself was inconsistent in this, i.e. sometimes the fall was coded, but other times the contact was coded as the direct mechanism). This was even more problematic when there was a long sequence of events (e.g. Scenario 6) or when the fall followed a collision with a person (Scenario 15).

The height of the fall in the scenarios was often unspecified. This caused problems for the coders. Many assumed the height depending on the scenario (e.g. Scenario 18 was assumed to be from a height of more than 1 metre), while only some coders used the relevant ‘unspecified’ code. It is reasonable to assume that in real life situations the height of falls is likely to be unknown. Guidelines on how to code such data should be provided or maybe we need to review the relevant fall codes in the Mechanism data element.

There is also confusion about which actual fall code to use. In many of the scenarios that involved falls, nearly all of the fall codes were mentioned by the coders.

As with transport-related incidents, the mechanisms involved in interpersonal violence were not always clear and this caused problems for the coders (Scenarios 38 and 45).

## **Object**

*(Some 41 scenarios had agreement of 30% or less for this data element.)*

Problems for this data element were similar to those for *Mechanism*. Major issues concern distinguishing between *Direct* and *Contributing objects/substances*, deciding whether contributing objects should be coded, and ‘incorrect’ but defensible codes. For example, in Scenario 1 (mentioned above under General comments) the direct object was the metal steps of a swimming pool. Some coders coded the steps (R55), others the surface (L29) or metal (S39). These may all be valid depending on the coders interpretation of how *Object/Substance* should be interpreted. We clearly need to give guidelines on how to code direct/contributing objects, but we also need to give guidance on how use ‘surface’ codes and how to code ‘parts of an object’, e.g. steps in a swimming pool.

Motor vehicle crashes were again a problem area. In a scenario where a motorcycle crashed against a stationary car, it was not obvious what caused the injury. It could have been the motorcycle, the other car, or the road, a tree which he hit, etc.

Firearm injuries presented problems for the coders. The gold standard coded the bullet as the direct object causing the injury, whereas many coders coded the firearm. This needs to be addressed and clear guidelines for coding provided (Scenarios 44, 99).

Some of the problems with this data element were related to the lack of relevant categories in the list of codes. This was especially obvious in regard to pharmaceuticals.

Some scenarios were just plain difficult to code. For example, in Scenario 70 where the blade of an ice skater caught in the ice, it is not entirely obvious whether to code the ice skate or the ice.

Scenarios in which two injuries occurred with two mechanisms and two (or more) objects, posed similar problems to those with *Mechanism* (see Scenarios 71 and 84).

As with mechanism and transport-related injuries, the object in interpersonal violence incidents were not always obvious and were difficult to code (e.g. Scenario 72).

## **Place**

*(For Place, 15 scenarios had per cent agreement of 30% or less.)*

As with other data elements, coders often used ‘other specified’ codes instead of ‘unspecified’.

Some coders made assumptions about where an injury event occurred. For example, in Scenario 1, the place was specified as swimming pool and many coders assumed that it happened at the patient’s home.

There was much uncertainty about the extra modules in the section on place. This needs clarification.

## **Activity**

*(Nineteen scenarios had 30% or less agreement with the gold standard.)*

Clearer guidelines are needed on how to distinguish between active leisure activities (e.g. mountain climbing) and unorganised sports.

Many coders were unsure how to code activity for intentional self-harm cases or for interpersonal violence cases, specifically the child abuse scenario (Scenario 17).

The code ‘Nothing in particular’ presented problems and coders were not sure when to use this code.

There was uncertainty around the code ‘Travelling’.

## **Alcohol and Other psychoactive drugs**

*(For these two data elements, less than 5 scenarios had percentages lower than 30%.)*

Some coders assumed that if an unintentional events occurred among certain ‘types’ of patients (e.g. housewife playing with kids, children, etc) and no information was provided on alcohol use, that the code ‘No’ applied, instead of ‘No information’.

## **Additional modules**

We clearly need more guidelines for traffic-related events, especially for deciding when to code the module.

The context of assault codes need clarification, e.g. where would shoplifting fit?

For legal intervention we note that the definition on p 4 of the data dictionary contradicts with what is written on p 61 of the June draft of the ICECI. It would be better to align these two sections. It will be confusing to have legal intervention defined one way under intent and then have the definition read differently elsewhere.

# 5 Discussion

The ICECI was received favourably by participants in this study. Many expressed support for the development of this classification system and for the overall structure of the ICECI. However, this project involved volunteers and those not in support of the ICECI of such a development would not have volunteered for the case scenario testing.

Both the qualitative and quantitative analyses indicated that, in general, *Mechanism* and *Object/Substance* were the most problematic data elements. This is not unexpected as these data elements have the biggest range of codes and embody considerable conceptual complexity. Moreover, these data elements are difficult to standardise because many injuries comprise a series of events and various individuals place different emphasis on different events. For instance, prevention specialists put greater emphasis on prevention aspects, whereas clinicians put greater stock in what causes the physical injury. Thus the coding of these elements can be expected to vary.

In the testing described here, the coding of *Mechanism* and *Object/Substance* was further complicated by the possibility of providing more than one code for both data elements. This allowance for more than one code for *Mechanism* and *Object/Substance* reflects the reality that an injury is often the result of a sequence of events. In the June 1999 draft of the ICECI, the emphasis for coding was on the *Direct Mechanism* or *Direct Object/Substance*, i.e. the mechanism or object most immediately and directly responsible for the trauma should have been coded first. Another contributing *Mechanism* and two *Objects/Substance* thought to be important were to be coded next. The quantitative results showed a notable difference between the coding of the '*Direct*' and '*Contributing*' *Mechanism* and *Object/Substance*. In each instance, agreement in excess of chance was better for the *Direct* data element than for the *Contributing* one. The selection of one among several candidate 'underlying' mechanisms and objects/substances in a consistent manner is a clearly a complex task.

At the March 2000 meeting of the ICECI Testing Group in India, it was decided that the emphasis should shift to coding the *Precipitating Mechanism* or *Object/substance* first and then the *Direct mechanism* should be coded. In September 2000 at another meeting of the Testing Group in Amsterdam, it was decided that the term '*Precipitating Mechanism*' was to be replaced with '*Underlying mechanism or object/substance*'. It is, however, unlikely that these decisions will completely solve the problem of choosing a mechanism or object/substance. As with the coding of 'underlying cause of death' explicit rules must be developed and applied if standardised coding is to be done. These rules have yet to be developed for ICECI.

*Mechanism* and *Object/substance* seem to be especially problematic in regard to transport-related injury, injury due to interpersonal violence, and fall-related injury. These three types of cases account for significant proportions of injury in most countries and emergency settings.

The other data elements seemed to produce fewer problems and those identified were more focused on the detailed application of relevant codes. However, all lists of codes need to be reviewed and expanded. Other areas that need attention are: the definition of injury; inclusion and exclusion criteria; and guidelines on coding two injuries that



resulted from two separate mechanisms or objects/substances. The Glossary also needs further attention and should be expanded.

One recurring comment from respondents was that more guidelines and examples are needed and this is true for all data elements. However, there should be distinction between the development of the data dictionary for the ICECI and the production of a coding manual. First priority should be given to the data dictionary. The coding manual should follow and should be less complicated and more appealing in appearance than the data dictionary. Examples and guidelines on how to handle situations and circumstances should appear in the coding manual.

The case scenario testing did not show any particular problems in relation to non-English speaking coders, but the overall sample size of this study was small and the number of non-English speaking participants even smaller. Some participants observed that applying the codes in another language than their own was problematic. Translation of the ICECI into other languages should remain on the agenda of the ICECI Technical Group.

Ultimately we have to realise that a system such as ICECI will never be perfect. In the interpretation of injury events many assumptions are made and these differ between individuals, because their circumstances and life experiences differ (sometimes dramatically). The aim, therefore, is to improve the ICECI and its current guidelines to such a degree that data are produced to meet the requirements for surveillance purposes. Typical purposes are to index cases; to monitor incidence; and/or to characterise cases to inform prevention.

For monitoring purposes, the first requirement is for valid and quantitatively precise estimates of particular types of injury. For characterising injury, more case detail is necessary and quantitative precision may be less important. This might be where different 'levels' of the ICECI come into play. If the purpose is to monitor trends, then first level codes may be most suitable. If the aim is to characterise injuries and how they occur (e.g. for prevention) more detail will be needed and in these instances the more detailed level of ICECI codes would be more suitable.

Finally, the present findings concerning the June 1999 draft of the ICECI do not, of themselves, provide guidance concerning its performance in comparison with other systems for classification of external causes on injuries. The methods used here could be applied to other systems, and comparisons could then be made. We are not aware of any published formal evaluation of the performance of the external causes classifications, including ICD 'External cause' codes.

### **Limitations of this study**

- The sample size of this study is small and the number of countries involved limited. Specifically, there are too few participants from less-resourced countries.
- While it was convenient for the purposes of the study to use a 'gold standard' as a reference point for analysis, the process of conducting the study revealed its limitations, e.g. it treated falls in an inconsistent manner.
- The coders who participated in the exercise were a select group of volunteers who have an interest and expertise in coding.

# 6 Recommendations

The following recommendations are put forward on the basis of this project. Similar advice was provided to the ICECI Technical Group in March and September 2000, during finalisation of this project. Subsequent revision of the draft ICECI has taken account of the findings of this project.

1. Complete the work on the current development and improvement of data elements and glossary in order to publish a data dictionary. This work should take account of the qualitative and quantitative findings of the present investigation.
2. Once the data dictionary has been completed, write a coding manual. This manual should include:
  - The definition of injury, with inclusion and exclusion criteria and a list of examples. This should appear as a section before the list of codes are provided.
  - Each data element should have a definition and guide to use. The guide to use should include enough appropriate examples. Clear guidelines on how to handle difficult cases should also appear, e.g. when is intent undetermined?, what activity should be coded for intentional self-harm?, etc. The definition of various terms used in the codes should also appear in the list of codes and not only in the glossary.
3. Expand the glossary to include definitions currently lacking.
4. Produce the test set used in the case scenario testing, together with a refined gold standard, as a training package for organisations or individuals implementing the ICECI.
5. Once the data dictionary has been finalised, have the data dictionary translated into major languages.

## Appendix 1: Abbreviated version of the ICECI data dictionary used in the testing

*The version shown below does not include the inclusion and exclusion criteria in order to save space. Also, we have excluded the sub-sections dealing with the relationship between ICD-10 and the ICECI, because of the continuing discussions around this issue.*

*For the complete and latest version of the ICECI, please contact the authors of this report or Saakje Mulder of the Consumer Safety Institute in the Netherlands. Contact details for both parties appear in Appendix 8.*

### Chapter 3 Data dictionary (draft June 1999)

#### 3.1 Introduction

This chapter is the heart of the report. For each variable we show relevant information. The main (sets of) variables are:

- intent
- mechanism of injury
- objects/substance producing injury
- place of occurrence
- activity when injured
- alcohol and drug use
- violence module
- transport module

For each variable we show the following information:

- Version of the ICECI-item.
- Status: in this stage all classifications are drafts.
- Required field length: number of digits needed for classification.
- Definition: how is the variable to be defined?
- Synonymous item name: if there is any.
- Context: the importance of the variable.
- Guide for use: operational guidance for coding.
- Classification scheme: an overview of the codes, sometimes at first and second level.
- Classification with inclusion and exclusion criteria: same classification scheme, but with general remarks about inclusions, exclusions and examples. Both printed categories are the first level.
- Relevant modules: for some variables suggestions have been made about extra information to be collected for a specific item of the variable or the whole variable.

## 3.2 Intent

<b>ICECI item</b>	Version 0.8
<b>Required field length</b>	2 digits
<b>Status</b>	Draft
<b>Definition</b>	Injuries inflicted by the self or by other persons with the aim of injuring or killing. This includes violent attacks against the will of the victim and the consensual violence.
<b>Synonymous item name</b>	Manner of injury
<b>Context</b>	<p>The assessed role of human intent in the occurrence of an injury has consequences for the type of care given to a patient, and for the prevention of recurrence. For example, the clinical and preventive approach to a person presenting with an injury is likely to differ according to whether it is thought to be self inflicted or unintentional.</p> <p>Attacks by animals are being regarded as unintentional.</p> <p>Social and legal sensitivities often apply to intentional injuries. Information on the subject tends to share this sensitivity. For this and other reasons health care facilities are not ideal places to collect information on the intentionality of injury. When possible, linkage between data collected in health care facilities and data collected by law enforcement agencies should be favored. However, when this is not possible, health care staff could collect the information. In that case, it is important to maintain strict confidentiality and to provide specific training to personnel involved with the data.</p> <p>Intent has long been given the primary role in the structure of the ICD "external causes" classification. In practice, determination of the intent of injury cases is often difficult, for conceptual and practical reasons.</p>
<b>Comment</b>	Further work must be done to extend the inclusion and exclusion terms to all categories, and to ensure that this is done in a way that takes account of at least the more common variations of useage of terms used. Readers of this draft are encouraged to contribute to this work.
<b>Guide for Use</b>	Terms with a * are terms which are included in the glossary (Section 5.3)
<b>Classification scheme</b>	

### *First level*

1	Unintentional *
2	Interpersonal
3	Intentional self-harm *
4	Legal Intervention *
5	Operations of war and civil insurrections *
6	Adverse effects or complication of medical or surgical care
7	Undetermined intent
9	Other and unspecified

### *Second level*

<b>1</b>	<b>Unintentional *</b>
<b>2</b>	<b>Interpersonal</b>
21	Sexual assault *
22	Assault *
23	Neglect *
24	Maltreatment syndrome *
25	Torture *
28	Other specified
29	Unspecified

- 3 Intentional self-harm \***
  - 31 Attempted suicide/para-suicide \*
  - 32 Self-mutilation
  - 38 Other specified
  - 39 Unspecified
- 4 Legal intervention \***
- 5 Operations of war and civil insurrection \***
  - 51 Civil war/guerrilla operation (involves only 1 country)
  - 52 War involving at least 2 countries
  - 53 Terrorism \*
  - 54 Civil insurrection \*
  - 55 After cessation of hostilities
  - 58 Other specified
  - 59 Unspecified
- 6 Adverse effects or complication of medical or surgical care**
- 7 Undetermined intent**
- 9 Other and unspecified**
  - 91 Sequelae of external causes \* ('late effects' classified elsewhere)
  - 92 Supplementary qualifying code (not available for use alone)
  - 98 Other specified intent
  - 99 Intent not specified

### 3.3 Mechanism of injury

<b>ICECI item</b>	Version 0.7
<b>Status</b>	Draft
<b>Required field length</b>	4 digits
<b>Definition</b>	The way in which injury was sustained. How the person was hurt.
<b>Context</b>	Physical trauma results from the transfer of energy, in one form or another, to the tissues that are damaged. The process whereby this occurs may be described as the 'mechanism of injury'. This data item enables many mechanisms of injury to be coded.
<b>Comment</b>	<p>The categories for this item are based on those in the item with the same name in the November 1995 draft ICECI, and subsequently published in the third revised edition of the NOMESCO <i>Classification of External Causes of Injury</i>. Additional categories have been added where required to improve mapping to Chapter XX of ICD-10. The order and grouping of categories has been altered to reflect the conceptual framework of the <i>Mechanism of Injury or Weapon Classification</i> (2<sup>nd</sup> draft) developed by the US Centres for Disease Control. That framework has been expanded where necessary to cover the more general scope of this data item, and the 'objects and substances' included in it have been moved to the ICECI item of that name. The aim is to find categories and groups that are reasonably intuitive to users. This has prompted some deviations from the 'forms of energy' framework used previously.</p> <p>A considerable amount of further work must be done to extend the inclusion and exclusion terms to all categories, and to ensure that this is done in a way that takes account of at least the more common variations of usage of terms used. Readers of this draft are encouraged to contribute to this work.</p>
<b>Guide for Use</b>	<p>First select and code the mechanism that is most immediately and directly responsible for the trauma. This is the direct mechanism. If more than one mechanism is involved in the occurrence of an injury, then code the contributing mechanism next.</p> <p><i>Example: A person falls from a ship into water, and then drowns. Code the direct mechanism as drowning/immersion and the contributing mechanism as a fall from a height.</i></p>

#### Classification scheme

##### Blunt force

- A1 Contact with blunt object**
  - A1.1 Contacting moving object
  - A1.2 Contacting static object
  - A1.3 Struck by thrown or falling object
  - A1.4 Struck by projected object
  - A1.5 Struck by moving object before which person moved/was moved
  - A1.6 Contacting animal: other
- A2 Application of bodily force**
  - A2.1 Struck by a person
  - A2.2 Sexual assault by bodily force
  - A2.9 Other specified contact with a person
- A3 Crushing**
  - A3.1 Pinching, crushing between
  - A3.8 Other specified crushing
  - A3.9 Unspecified crushing
- A4 Falling, stumbling, jumping**
  - A4.1 Falling/stumbling by tripping on same level
  - A4.2 Falling/stumbling by slipping on same level
  - A4.3 Other falling/stumbling on the same level
  - A4.4 Falling/jumping/pushed from a height: less than 1 meter
  - A4.5 Falling/jumping/pushed from a height: more than 1 meter
  - A4.8 Other specified falling/stumbling
  - A4.9 Unspecified falling/stumbling

**A5 Abrading, rubbing****A8 Other specified contact****A9 Unspecified contact****Penetrating force****C Piercing, penetrating**

- C1 Cutting, tearing
- C2 Puncturing
- C3 Foreign body entering through skin
- C4 Bitten by person
- C5 Bitten by animal
- C6 Invenomation
- C8 Other specified piercing / penetrating force
- C9 Unspecified piercing / penetrating

**Other mechanical force****E Mechanical Force nec**

- E1 Struck by explosive blast
- E8 Other specified mechanical force
- E9 Unspecified mechanical force

**Thermal and radiant mechanisms****G1 Thermal**

- G1.1 Contact with hot liquid, steam, other gas
- G1.2 Contact with hot object or solid substance
- G1.3 Contact with fire or flame
- G1.4 Heating, whole body - natural source
- G1.5 Heating, whole body -human-created source
- G1.6 Cooling - natural source
- G1.7 Cooling -human-created source
- G1.8 Other specified thermal effect
- G1.9 Unspecified thermal effect

**G2 Electricity, radiation**

- G2.1 Electric current
- G2.2 Welding light
- G2.3 Visible and ultraviolet light - human-created source
- G2.4 Sun light
- G2.5 Other non-ionizing radiation
- G2.6 Ionizing radiation
- G2.8 Other specified radiation effect
- G2.9 Unspecified radiation effect

**G3 Sound, vibration**

- G3.1 Acoustic energy
- G3.2 Vibration
- G3.8 Other specified acoustic effect
- G3.9 Unspecified acoustic effect

**Threats to breathing****J Threats to breathing**

- J1.1 Strangling
- J1.2 External compression of airway, chest
- J1.3 Obstruction of airways by inhaled object/substance
- J2.1 Drowning/near-drowning following fall into water
- J2.2 Drowning/near-drowning while in a body of water
- J2.3 Drowning/near-drowning: other
- J3 Confinement in oxygen-deficient place
- J8 Other specified threat to breathing
- J9 Unspecified threat to breathing

**L Therapeutic, surgical and medical care**

- L1.1 Adverse effects in therapeutic use of drugs, medicaments, biological substances
- L1.2 Contaminated medical or biological substance
- L1.3 Failure in dosage during surgical and medical care
- L2 Foreign body accidentally left in body during surgical and medical care
- L3 Adverse incidents associated with medical devices in diagnostic and therapeutic use
- L4 Abnormal reaction of the patient caused by surgical operations and other surgical procedures, without mention of misadventure at the time of the procedure, nec
- L5 Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care
- L6 Failure of sterile precaution during surgical and medical care
- L7 Non-administration of surgical and medical care
- L8 Other specified misadventure during surgical and medical care
- L9 Unspecified misadventure during surgical and medical care

**Poisoning by, exposure to chemical substances**
**N Poisoning by chemical substances**

- N1 Poisoning by solid substances
- N2 Poisoning by liquid substances
- N3 Poisoning by gaseous substances

**N4 Corrosion by chemical substances**

- N4.1 Corrosion by solid substances
- N4.2 Corrosion by liquid substances
- N4.3 Corrosion by gaseous substances
- N4.8 Other specified corrosion
- N4.9 Unspecified corrosion
- N8 Other specified effect of chemical substance
- N9 Unspecified effect of chemical substance

**P Physical over-exertion**

- P1 Acute over-exertion
- P2 Non-acute overexertion
- P8 Other specified physical over-exertion
- P9 Unspecified physical over-exertion

**U Other and unspecified mechanisms of injury**

- U1 Foreign body entering into or through eye or natural orifice
- U2 Extreme or changing air pressure
- U3 Exposure to low gravity
- U4 Travel and motion
- U5 Neglect or abandonment
- U6.1 Lack of food
- U6.2 Lack of water
- U6.9 Unspecified lack of necessities of life
- U8 Other specified mechanism of injury
- U9 Unspecified mechanism of injury



### 3.4 Object or substance producing injury

<b>ICECI item</b>	Version 0.7
<b>Status</b>	Draft
<b>Required field length</b>	3 digits
<b>Definition</b>	Objects, substances and phenomena which can produce injury.
<b>Context</b>	Physical trauma results from the transfer of energy, in one form or another, to the tissues that are damaged. The process whereby this occurs may be described as the 'mechanism of injury.' The energy is conveyed by means of objects (e.g. a car), substances (e.g. hot water) and other phenomena of the physical world (e.g. electricity, radiation). This data item enables many objects and substances to be coded.
<b>Comment</b>	<p>The categories in this item were selected as follows: (1) objects and substances found frequently among all cases, or among admitted cases, or among fatal cases in a large collection of injury cases attending emergency departments in Australia; (2) additional categories to ensure that there is one corresponding to every object and substance mentioned in the title of a three-character category in Chapter XX of ICD-10; and (3) further categories added on the advice of injury researchers.</p> <p>A considerable amount of further work must be done to extend the inclusion and exclusion terms to all categories, and to ensure that this is done in a way that takes account of at least the more common variations of usage of terms used. Readers of this draft are encouraged to contribute to this work.</p>
<b>Guide for Use</b>	<p>First select and code the object that is most immediately and directly responsible for the trauma. This is the direct object. If more than one object is involved in the occurrence of an injury, then code up to two contributing objects.</p> <p><i>Example: A person falls from a passenger ship into the sea, and then drowns. Code the primary object as sea (natural body of water) and contributing object 1 as passenger ship. There is no contributing object 2 specified.</i></p>

#### Classification scheme

Code	Object or Substance producing injury
<b>A</b>	<b>Infant's or child's product</b>
A01	Baby pram, pusher, etc
A02	Baby walker
A03	High chair
A04	Cot
A09	Other product intended for infant/child care
A21	Tree house, play house
A22	Tricycle (child's) or other ride-on toy
A29	Other toy
A41	Flying fox
A42	Monkey bar or other playground climbing apparatus
A43	Slide, sliding board
A44	Swing, swing set
A45	Seesaw
A49	Other playground equipment
A98	Other specified infant's or child's product
A99	Unspecified infant's or child's product
<b>B</b>	<b>Furnishing</b>
B01	Bed
B03	Bunk bed
B05	Bedding
B19	Cabinet, rack, room divider, shelf
B29	Chair, stool
B39	Sofa, couch, lounge, divan, etc
B49	Table, desk, bench, etc
B59	Rug, mat, loose carpet
B98	Other specified furnishing
B99	Unspecified furnishing

**C (Household) Appliance**

C01	Kettle
C09	Cooking appliance
C19	Food processing appliance
C29	Refrigerator, freezer
C39	Clothes iron, press
C49	Clothes cleaning appliance
C57	Radiator
C59	Heating appliance nec
C61	Sewing machine
C98	Other specified appliance
C99	Unspecified appliance

**D Utensil or container**

D09	Knife [utensil]
D11	Cooking pot, pan
D19	Cutlery, food preparation utensil
D21	Drinking glass
D23	Glass bottle
D39	Clothesline, clothes drying rack, clothes horse
D51	Plastic bag
D59	Waste container, rubbish basket, refuse bin
D63	Tinned container
D91	Grocery or shopping trolley
D98	Other specified utensil or container
D99	Unspecified utensil or container

**E Land vehicles and means of transport**

E01	Pedestrian
E05	Animal being ridden
E07	Animal-drawn vehicle
E19	Pedal cycle
E21	Motorcycle
E25	Three-wheeled motor vehicle
E39	Passenger car
E49	Bus
E51	Light truck
E55	Heavy transport vehicle
E69	Trailer or horse-float
E79	Streetcar
E89	Railway vehicle
E97	Motor vehicle not further specified
E98	Other specified transport
E99	Unspecified transport

**F Special purpose vehicles, mobile machinery**

F09	Tractor
F11	Harvesting machine
F13	Auger
F15	Slasher
F18	Other specified special agricultural vehicle or mobile machinery
F19	Unspecified special agricultural vehicle or mobile machinery
F21	Fork lift or lift truck
F28	Other specified special industrial vehicle
F29	Unspecified special industrial vehicle
F39	Special construction vehicle
F49	Special all-terrain/off-road vehicle
F98	Other specified special purpose vehicles and mobile machinery
F99	Unspecified special purpose vehicles and mobile machinery

**G Water craft and means of transport**

G09	Merchant ship
G19	Passenger ship
G29	Fishing boat
G33	Jet ski
G35	Motorboat
G36	Hovercraft
G38	Other specified powered watercraft
G39	Unspecified powered watercraft
G49	Sailboat
G59	Canoe or kayak
G69	Inflatable craft (non-powered)
G79	Water skis
G88	Other specified non-powered watercraft
G89	Unspecified non-powered watercraft
G99	Unspecified watercraft

**H Air craft and means of transport**

H09	Helicopter
H19	Ultralight powered aircraft
H29	Private fixed-wing powered aircraft
H39	Commercial fixed-wing powered aircraft
H45	Spacecraft
H48	Other specified powered aircraft
H49	Unspecified powered aircraft
H59	Passenger balloon, non-powered
H69	Hang-glider
H79	Glider
H89	Part of aircraft (powered or unpowered)
H98	Other specified non-powered aircraft
H99	Unspecified non-powered aircraft

**I Sporting equipment**

I01	Ball
I02	Puck
I03	Spear
I04	Arrow (bow and arrow, crossbow)
I05	Javelin
I09	Other sporting projectile
I29	Bat, racquet, hockey stick, etc
I31	Roller skates, skateboards
I33	Skis
I35	Ice skates
I45	Trampoline
I49	Object/structure on or near playing area
I98	Other specified sporting equipment
I99	Unspecified sporting equipment

**J Tool, machine, apparatus**

J01	Nail, screw, carpet tack, drawing pin, etc
J02	Pin, needle
J05	Scissors
J11	Ladder, movable steps
J13	Scaffolding
J16	Lawn mower - not powered
J21	Hand tool, non-powered: hammer
J22	Hand tool, non-powered: chopping
J23	Hand tool, non-powered: cutting
J25	Hand tool, non-powered: digging and tilling
J27	Hand tool, non-powered: lifting
J28	Other specified non-powered hand tool
J29	Unspecified non-powered hand tool
J31	Powered hand tool: nail gun or stud driver
J32	Powered hand tool: grinder, buffer, polisher
J33	Powered hand -tool: chain saw
J34	Powered hand -tool: circular saw
J38	Other specified powered hand tool
J39	Unspecified powered hand tool
J54	Power operated crane, hoist
J51	Lawn mower - powered
J59	Other powered garden tool
J61	Welding equipment
J69	Power tool: other or unspecified
J71	Shearing plant
J72	Dairy/milking plant
J77	Press
J81	Boiler
J83	Gas cylinder
J85	Pressurised tyre, hose, pipe
J87	Other pressurised device
J89	Vehicle part, fitting or accessory
J91	Mechanical power transmission device
J93	Engine
J95	Fixed plant/machinery other or unspecified
J98	Other specified tool, machine, apparatus
J99	Unspecified tool, machine, apparatus

**K Animal, plant, person**

K07	Branch
K09	Tree
K13	Plant thorns
K17	Venomous plant
K18	Other specified plant nec
K19	Other unspecified plant

K29	Bird
K30	Bee
K31	Wasp
K32	Hornet
K33	Ant
K34	Spider
K35	Scorpion
K36	Tick
K37	Centipede, millipede
K38	Other specified arthropod
K39	Unspecified arthropod
K41	Dog
K43	Cat
K44	Rat
K45	Sheep
K46	Cow, bull, bovine
K47	Horse
K48	Other specified mammal
K49	Unspecified mammal
K51	Fish
K53	Sea snake
K56	Jellyfish
K57	Coral
K58	Other specified marine animal
K59	Unspecified marine animal
K61	Snake
K63	Lizard
K65	Crocodile or alligator
K68	Other specified reptile
K69	Unspecified reptile
K71	Person (other person)
K72	Person (self)
K75	Crowd of people
K95	Other specified venomous animal nec
K96	Unspecified venomous animal, plant
K98	Other specified animal, plant, person
K99	Unspecified animal, plant, person
<b>L</b>	<b>Ground surface and conformations</b>
L23	Ice or snow
L29	Surface
L33	Cliff
L43	<i>Slope, ramp</i>
L98	Other specified
L99	Unspecified
<b>M</b>	<b>Weather, natural disasters</b>
M19	Storm
M29	Flood
M39	Lightning
M49	Earthquake
M59	Volcanic eruption
M69	Avalanche etc
M98	Other specified
M99	Unspecified
<b>N</b>	<b>Food, drink</b>
N01	Hot cooking oil or fat
N03	Food, hot
N04	Hot drinks
N05	Food, cold
N07	Cold drinks, non-alcoholic
N08	Alcohol (drinks), beverage
N98	Other specified food, drink
N99	Unspecified food, drink
<b>O</b>	<b>Personal use item</b>
O21	Footwear
O25	Night-clothes
O28	Clothing: other specified
O29	Clothing: unspecified
O49	Jewellery
O57	Coin
O67	Pen, pencil
O71	Wheelchair
O81	Tobacco / tobacco products
O98	Other specified personal use item

	O99	Unspecified personal use item
<b>P</b>		<b>Drugs, pharmaceutical substances</b>
	P01	Antihistamine
	P11	Aspirin, aspirin compound
	P12	Paracetamol, paracetamol compound
	P19	Non-opioid analgesics, antipyretics, antirheumatics, nec
	P29	Sedative, tranquilliser, psychotropic, etc
	P33	Opiates
	P39	Narcotics and hallucinogens nec
	P49	Drugs acting on autonomic nervous system
	P59	Anaesthetics and therapeutic gases
	P69	Vaccines
	P71	Antibiotics
	P72	Anti-infective and antiparasitics
	P79	Anti microbial substance nec
	P81	Cardiovascular agents
	P82	Drugs affecting blood constituents
	P83	Preparation containing iron salt
	P91	Ointment, topical medicine, lineament
	P92	Systemic agents
	P93	Antiepileptics and antiparkinsonism
	P94	Hormones and their synthetic substitutes and antagonists nec
	P95	Gastrointestinal agents
	P96	Water balance, mineral and uric acid metabolism agents
	P97	Muscle and respiratory agents
	P98	Other specified drug or medication
	P99	Other unspecified drug or medication
<b>Q</b>		<b>Chemical substance, non-pharmaceutical</b>
	Q09	Alcohol's nec
	Q11	Petrol, other petroleum distillate
	Q19	Organic solvents nec
	Q21	Motor vehicle exhaust gas
	Q22	Carbon monoxide nec
	Q23	Butane, propane
	Q29	Gases and vapours nec
	Q31	Moth repellent
	Q39	Pesticide nec
	Q43	Dishwasher detergent
	Q46	Bleach, caustic
	Q49	Caustic and corrosive substances nec
	Q59	Soap, detergent, cleaning compounds nec
	Q69	Glue, adhesive nec
	Q71	Paint, paint thinner paint stripper
	Q88	Specified food poison
	Q89	Unspecified food poison
	Q98	Other specified. chemical substance
	Q99	Unspecified. chemical substance
<b>R</b>		<b>Building, building component or fitting</b>
	R01	Toilet
	R02	Bathtub
	R04	Shower
	R13	Swimming pool
	R21	Door
	R22	Glass door
	R23	Window
	R24	Floor
	R41	Fence, gate
	R51	Ramp, escalator
	R55	Stairs, steps
	R61	Handrail, railing, banister
	R79	Building
	R81	Electrical transmission lines
	R89	Electrical fixture
	R98	Other specified building, building component or fitting
	R99	Unspecified building, building component or fitting
<b>S</b>		<b>Material</b>
	S09	Rock, stone, gravel, soil, earth
	S19	Brick, concrete, concrete block
	S29	Wood: timber, board, splinter, etc
	S32	Molten metal
	S39	Metal: sheet, part, piece. etc. nec
	S42	Molten glass
	S49	Glass: sheet, piece, shard, etc. nec

	S59	Liquid and frozen gas
	S69	Molten metal, glass, etc to be deleted
	S98	Other specified material
	S99	Unspecified material
<b>T</b>	<b>Weapon</b>	
	T08	Knife [weapon]
	T09	Sword, dagger, machete
	T11	Hand gun
	T13	Rifle
	T15	Shotgun
	T17	Airgun
	T18	Firearm, other
	T19	Firearm, unspecified
	T29	Club, cudgel
	T31	Spear
	T32	Arrow (bow and arrow)
	T33	Arrow (cross bow)
	T34	Javelin
	T98	Other specified
	T99	Unspecified
<b>U</b>	<b>Medical/Surgical devices and procedures</b>	
	U07	Hypodermic needle / syringe
	U09	Medical / surgical instrument, equipment
	U19	Anaesthesiology devise
	U29	Cardiovascular devise
	U39	ENT devise
	U49	Gastroenterology devise
	U59	Neurological devise
	U69	Obstetric and Gynaecological devise
	U79	Ophthalmic devise
	U89	Orthopaedic devise
	U91	Radiological devise
	U92	Physical medicine devise
	U93	General hospital and personal-use devise
	U94	General and plastic-surgery devise
	U97	Other surgical operation or procedure nec
	U98	Other medical procedure nec
	U99	Other specified or unspecified medical devise
<b>V</b>	<b>Fire, flame, smoke</b>	
	V09	Uncontrolled fire in building or structure
	V19	Uncontrolled fire, not in building or structure
	V29	Controlled fire in building or structure
	V39	Controlled fire, not in building or structure
	V49	Ignition of highly flammable material
	V51	Ignition or melting of nightwear
	V59	Ignition or melting of other clothing and apparel
	V98	Other specified smoke, fire and flames
	V99	Unspecified smoke, fire and flames
<b>Z</b>	<b>Miscellaneous object, substance</b>	
	Z19	Tent
	Z21	Hot tap water
	Z23	Hot water, other
	Z24	Hot liquid nec
	Z27	Natural body of water
	Z28	Steam, hot vapour
	Z29	Water
	Z39	Hot air or gas
	Z49	Rope or string
	Z51	Firework
	Z59	Explosive material nec
	Z61	High pressure jet
	Z63	Sharp object, nec
	Z65	Blunt object, nec
	Z67	Gastric contents
	Z79	Environmental pollution nec
	Z98	Other specified factor
	Z99	Unspecified factor

### 3.5 Place of occurrence

<b>ICECI item</b>	Version 0.4
<b>Status</b>	Draft
<b>Required field length</b>	3 digits
<b>Definition</b>	The specific location at which the person was situated when injured.
<b>Synonymous item name</b>	Location of injury occurrence
<b>Context</b>	<p>A major aim for injury surveillance is to help agencies and organisations which have responsibility for safety, or power to improve safety, to do so. A first step in this direction is to enable an organisation to “see” the nature and extent of injury occurring within its sphere of responsibility or influence. Sometimes the sphere of responsibility or influence extends to a particular type of place. For example, education departments and school authorities have responsibilities for safety at schools. The classifications of <i>place</i> are useful for identifying a whole entity which has distinct organisational, legal or other characteristics which determine or indicate who can, or should, take responsibility for injury control in that setting.</p>
<b>Comment</b>	<p>Contrary to ICD-10, the use of the code value '0' has been avoided to prevent problems that sometimes arise from failure to maintain the distinction between zero and null (or missing).</p>
<b>Guide for use</b>	<p>*Select the category that best describes the specific type of place at which the person was situated when injured. If two or more categories are judged to be equally appropriate, select the one that comes first in the code list.</p> <p>*Select the category where the injury event started (if you have that information). For example code 61 Roadway and not 122 Stream of water, if someone collides on the road, slides into the river and drowns. A suggestion is to record more than one place of occurrence.</p> <p>*Unless otherwise stated, places include attached grounds, outbuildings, etc. For example 'Home' includes dwelling and associated garden, garage, shed, etc. Select a category referring to the whole entity (ie a structure or space owned or operated as a whole) within which an injury occurred in preference to a category referring to only a part of such an entity. For example, code a case which occurred in a primary school playground to 41 (School, educational area: School, university) rather than to 101 (Recreational or cultural area or public building: Playground). Immersion in a pond on a farm should be coded as 9 Farm and not as 121 Area of still water.</p>

## Classification scheme

### *First level*

- 1 Home
- 2 Institutional area
- 3 Medical service area
- 4 School, educational area
- 5 Sports and athletics area
- 6 Transport area: street and highway
- 7 Transport area: other
- 8 Industrial and construction area
- 9 Farm
- 10 Recreational or cultural area or public building
- 11 Commercial area
- 12 Countryside
- 18 Other specified
- 19 Unspecified

### *Second level*

- 1 Home**
- 2 Institutional area**
  - 21 Home for the elderly
  - 22 Nursing home
  - 23 Prison
  - 24 Shelter for battered women
  - 28 Other specified residential institution
  - 29 Unspecified residential institution
- 3 Medical service area**
  - 31 Hospital
  - 32 Outpatient clinic, health centre
  - 38 Other specified medical service area
  - 39 Unspecified medical service area
- 4 School, educational area**
  - 41 School, university
  - 42 Playground and sport facilities of school or university
  - 43 *Day care, kindergarten*
  - 44 *Playground of day care, kindergarten*
  - 48 Other specified school, educational area
  - 49 Unspecified school, educational area
- 5 Sports and athletics area**
  - 51 Sportsground (outside)
  - 52 Sportshall (inside)
  - 53 Public swimming centre
  - 54 Racetrack, racecourse
  - 55 Riding school
  - 56 Skating rink, ice palace
  - 57 Ski area
  - 58 Other specified sports and athletics area
  - 59 Unspecified sports and athletics area
- 6 Transport area: street and highway**
  - 61 Roadway
  - 62 Sidewalk
  - 63 Cycleway
  - 68 Other specified transport area: street and highway
  - 69 Unspecified transport area: street and highway
- 7 Transport area: other**
  - 71 Parking area
  - 72 Public transport
  - 78 Other specified transport area: *other*
  - 79 Unspecified transport area: other
- 8 Industrial and construction area**
  - 81 Construction area
  - 82 Demolition site
  - 83 Factory/plant
  - 84 Mine and quarry
  - 85 Oil or gas extraction
  - 86 Shipyard



	87	Power station
	88	Other specified industrial and construction area
	89	Unspecified industrial and construction area
<b>9</b>	<b>Farm</b>	
	91	Agricultural farm
	92	Plantation
	93	Farm with animal rearing activities
	98	Other specified farm or other place of primary production
	99	Unspecified farm or other place of primary production
<b>10</b>	<b>Recreational or cultural area or public building</b>	
	101	Playground
	102	Amusement park
	103	Public park
	104	Public building, non cultural
	105	Holiday resort
	108	Other specified recreational or cultural area or public building
	109	Unspecified recreational or cultural area or public building
<b>11</b>	<b>Commercial area</b>	
	111	Shop
	112	Commercial garage
	113	Office building
	114	Cafe, hotel, restaurant
	118	Other specified commercial area (non recreational)
	119	Unspecified commercial area (non recreational)
<b>12</b>	<b>Countryside</b>	
	121	Area of still water
	122	Stream of water
	123	Large area of water
	124	Marsh, swamp
	125	Beach
	126	Forest
	127	Desert
	128	Other specified, Countryside
	129	Unspecified, Countryside
<b>18</b>	<b>Other specified</b>	
<b>19</b>	<b>Unspecified</b>	

**Relevant modules**

\* Can be accompanied by a *indoor/outdoor* code (extra digit) for the relevant codes. If this variable is included in the classification, the codes 51 and 52 can be aggregated into one code.

\* Can be accompanied for several main groups by the module '*part of building*' as an extra digit:

10	<i>Bathroom, toilet</i>	
11	<i>Kitchen</i>	
12	<i>Living room</i>	
13	<i>Bedroom</i>	
14	<i>Stairs</i>	
15	<i>Balcony</i>	
16	<i>Garden, yard</i> (Includes walled compound, courtyard, sporting facilities, tennis court)	
17	<i>Garage/drive-way</i>	
18	<i>Swimmingpool</i>	
19	<i>Other specified</i> (Includes roof)20	<i>Unspecified</i>

\* Can be accompanied for main group 1 by the module '*type of home*' (as an extra digit). An example:

1	detached house
2	terrace house, row house
3	apartment, flat
4	farmhouse
5	residential caravan, mobile home, houseboat
6	hut, cabin, shack
7	boarding house, hotel
8	other specified type of home
9	unspecified type of home

\* Medical service area (main group 3) can be specified by the module '*type of medical service area*', which will differ per country.

\* 'School, educational area' (main group 4) can be more detailed by using the accompanying module '*type of school*'. An example:

- 1 children centre
- 2 pre-school, kindergarten
- 3 primary school
- 4 secondary school
- 5 university
- 6 adult education institution
- 8 other specified type of school
- 9 unspecified type of school

\* 'Sports and athletics area' (main group 5) can be further specified by the module '*type of sports*'

\* Transport area (main groups 6 and 7) can be specified by:

- 1 inside city limits
- 2 outside city limits
- 9 unknown

\* Transport area (main groups 6 and 7) can be specified by:

- 1 public road
- 2 non-public road
- 9 unknown

## 3.6 Activity when injured

<b>ICECI item</b>	Version 0.4
<b>Status</b>	Draft
<b>Required field length</b>	2 digits
<b>Definition</b>	The type of activity being undertaken by the person when injured.
<b>Context</b>	<p>The key use of 'Activity when injured' is to identify cases of injury which fall within the area of responsibility and authority of particular sectors, organisations and agencies.</p> <p>Being able, for example, to distinguish "injury while working for income" or "injury while playing sport" from among all cases is a basic step. "Place of Occurrence" is not, on its own, an adequate basis for doing this. For example, people may work for income while in a home or on a street just as much as in an office or a factory. Who is the responsible sector can usually be identified by a combination of the information from 'Activity when injured' and 'Place of occurrence'.</p>
<b>Comment</b>	'Activity when injured' is a rather blurred item for which it is difficult to draft mutual exclusive categories that are recognizable. An option is to replace this variable by separate questions about is it transport (yes/no), is it occupational (yes/no), etcetera. A field test will show the best option.
<b>Guide for Use</b>	<p>* The main purpose of the item 'Activity when injured' is to enable injury cases to be grouped into categories that correspond to areas of responsibility for injury prevention. This should be kept in mind when using the classification.</p> <p>* Select the item which best characterises the type of activity being undertaken by the person when injured, on the basis of the information available at the time it is recorded. If after this criterion, still two or more categories are judged to be equally appropriate, select the one that comes first in the code list.</p>

### Classification scheme

1	Paid work
2	Unpaid work
3	Travelling
4	Organised sports
5	Unorganised sports
6	Leisure
7	Education
8	Health care
9	Vital activity
10	Being taken care of
11	Nothing in particular
18	Other specified activity
19	Unspecified activity

## 3.7 Alcohol and drug use

### 3.7.1 Alcohol use

<b>ICECI item</b>	Version 0.2
<b>Status</b>	Draft
<b>Required field length</b>	1 digit
<b>Definition</b>	<i>Evidence of the acute use of alcohol by the injured person prior to the occurrence of the injury.</i>
<b>Context</b>	<i>Alcohol use and abuse is a risk factor for injuries. It is therefore important to collect information on its use by the injured person prior to the occurrence of the injury.</i>
<b>Guide for use</b>	<p><i>Code this item for each injury case. If there is no information on acute alcohol use by the injured person prior to injury, please use "1".</i></p> <p><i>If there is a suspicion of alcohol use, but there is no specific evidence, then use "2". If there is definite evidence of alcohol use, and the injured person did use alcohol, then use "3". If there is definite evidence of alcohol use, and the injured person did not use alcohol, then use "4".</i></p>
<b>Classification scheme</b>	
1	No information
2	Suspected
3	Yes
4	No

### 3.7.2 Other psychoactive drug use

<b>ICECI item</b>	Version 0.2
<b>Status</b>	Draft
<b>Required field length</b>	1 digit
<b>Definition</b>	<i>Evidence of acute intoxication with psychoactive drugs (e.g.: opiates, cocaine, amphetamines, cannabinoids, sedatives, hypnotics,) by the injured person prior to the occurrence of the injury.</i>
<b>Context</b>	<i>Drug use and abuse is a risk factor for injuries. It is therefore important to collect information on the use of these substances by the injured person prior to the occurrence of the injury.</i>
<b>Guide for use</b>	<p><i>Code this item for each injury case. If there is no information on acute intoxication with psychoactive drugs by the injured person prior to injury, please use "1". If there is a suspicion of drug use, but there is no specific evidence, then use "2". If there is definite evidence of drug use, and the injured person did use drugs, then use "3". If there is definite evidence of drug use, and the injured person did not use alcohol, then use "4".</i></p>
<b>Classification scheme</b>	
1	No information
2	Suspected
3	Yes
4	No

## 3.8 Violence module

### 3.8.1 Introduction

In May 1996, the Forty-Ninth World Health Assembly (WHA) adopted a resolution declaring violence a leading worldwide public health problem and urged member states to assess and develop science-based solutions to the problem. A plan of action with the following four objectives was developed: First, describe the problem (first priority); Second, conduct risk factor research to understand the problem; Third, identify and evaluate interventions designed to reduce violence; And fourth, implement and disseminate violence prevention programs. The present module was compiled to assist countries or regions to better describe the problem of fatal and non-fatal violence-related injuries. It will facilitate the task of data collectors by providing them with uniform code sets. The axes of classification are the perpetrator-victim relationship, the circumstances that lead to the occurrence of the assault and the self-inflicted injury or the legal intervention. These axes are specific to violence-related injuries. However, other very useful data elements such as the manner of injury, the place where the injury occurred, and the mechanism of injury should be collected for all injuries, including violence-related injuries. They are described in other parts of this publication. As it is the case for the rest of this manual, the decision of incorporating all or only certain data elements in a surveillance system is left to the discretion of each country, region or province. The decision can be based on the specific information that is needed, the resources that are available or the data sources that are willing to collaborate. As it is also the case, for the rest of this manual, the classification of data elements for violence-related injuries is compatible with ICD-10. There is no ideal single data source that will provide quality information on violence-related injuries. An acute care setting such as an emergency department will probably be the most commonly used to collect data on all types of injuries. However, ideally information on violence-related injuries collected in the acute care setting should be linked to data from hospitalization records, death certificates and/or records from law enforcement agencies. This will obviously raise numerous political and technical difficulties but it is probably the only way to obtain reliable information on data elements such as the perpetrator-victim relationship or the circumstances surrounding the event. However, when this is not a possibility, health care staff could collect the information. In that case, it is of paramount importance to develop very strict confidentiality rules. Specific training for health personnel emphasizing this aspect should be provided before collecting such information in health care settings.

### 3.8.2 When to code the violence module?

The coding of the Intent data variable determines which, if any, components of the violence module should be coded. The relationship between the classifications of the data item Intent and the parts of the violence module are as follows:

Coding of Intent	Components of the Violence module that should be coded
If Intent=1 (Unintentional injury)	Violence module not coded
If Intent=2 (Interpersonal injury)	Please code: <i>Relationship between victim and perpetrator</i> and <i>Context for assault</i>
If Intent=3 (Intentional self-harm)	Please code: <i>Precipitating factors</i>
If Intent=4 (Legal intervention)	Please code: <i>Type of legal intervention</i>
If Intent=5 (War/civil insurrection)	Violence module not coded
If Intent=6 (Adverse effects of medical care)	Violence module not coded
If Intent=7 (Injury with undetermined intent)	Violence module not coded
If Intent=8 (Injury with other or unspecified intent)	Violence module not coded

### 3.8.3 Relationship between victim and perpetrator

<b>ICECI item</b>	Version 0.3
<b>Status</b>	Draft
<b>Required field length</b>	4 digits
<b>Definition</b>	The relationship between the person that was injured and the person committing the violent act that lead to the injury.
<b>Context</b>	Intentional injury surveillance systems collect mainly information on victims. However, to have a better understanding of the type of violence (e.g. family violence vs. violence committed by strangers), it is important to start collecting information about the perpetrator(s). Collecting information about the relationship between the victim and the perpetrator will help determine the main types of violence that plague a society and will help decision makers to orient their prevention efforts effectively.
<b>Comment</b>	Because neither health care facilities, nor police departments are the ideal place to collect information on the relationship between the victim and the perpetrator, linkage between data collected in health care facilities and data collected by law enforcement agencies should be favoured, whenever possible.
<b>Guide for use</b>	Select the category that best describes the relationship between the victim and the perpetrator. If two or more categories are judged to be equally appropriate, select the one that comes first in the code list.

#### Classification scheme

- 1 Spouse or partner**
  - 1.1 Unspecified
  - 1.2 Spouse
  - 1.3 Partner
  - 1.4 Ex-spouse
  - 1.5 Ex-partner
- 2 Parent**
  - 2.1 Unspecified parent
  - 2.2 Father
  - 2.3 Mother
  - 2.4 Stepfather
  - 2.5 Stepmother
- 3 Other relative**
  - 3.1 Unspecified relative
  - 3.2 Sibling
  - 3.3 Grandfather
  - 3.4 Grandmother
  - 3.5 Adult child
  - 3.6 Minor child
  - 3.7 In-laws
  - 3.9 Other specified relative
- 4 Unrelated care giver**
  - 4.1 Unspecified unrelated care giver
  - 4.2 Foster father
  - 4.3 Foster mother
  - 4.4 Care giver in institution
  - 4.9 Other specified unrelated care giver
- 5 Acquaintance or friend**
  - 5.1 Unspecified acquaintance or friend
  - 5.2 Mother's boyfriend
  - 5.3 Father's girlfriend
  - 5.4 Roommate
  - 5.5 Neighbour
  - 5.6 Co-worker
  - 5.7 Employer
  - 5.8 Health care provider
  - 5.9 Other specified acquaintance or friend

- 6 Official authorities/Legal authorities**
  - 6.1 Unspecified
  - 6.2 Military
  - 6.3 Police
  - 6.4 Other security groups
  - 6.5 Civilian authorities
  - 6.8 Other specified
- 7 Multiple perpetrators**
- 8 Stranger**
- 9 Other specified persons**
- 10 Unspecified persons**

### 3.8.4 Context of assault

<b>ICECI item</b>	Version 0.3
<b>Status</b>	Draft
<b>Required field length</b>	4 digits
<b>Definition</b>	The context in which the assault causing the injury occurred.
<b>Synonymous</b>	Reason for assault
<b>Context</b>	A large number of injuries occur during assaults. However, little is known about the type of assaults during which injuries occur (e.g. family quarrels, drug-related, gang-related violence, etc.). To improve the understanding of violence-related injuries, it is important to collect information about the circumstances in which assaults that lead to injuries occur. Collecting that information will help decision makers to orient their prevention efforts effectively.
<b>Comment</b>	Health care facilities are not the ideal place to collect information on the circumstances that lead to an assault. Whenever possible, linkage between data collected in health care facilities and data collected by law enforcement agencies should be favoured. However, when this is not a possibility, health care staff could collect the information.
<b>Guide for use</b>	Use only if the injury resulted from inter personal violence with the exception of legal interventions, war or civil unrest. Based on the best information available describe the contextual factors, immediately proximate to the event, that describe the reasons for the assault. This axis can be coded multiple times (maximum three times) in order to fully describe the contextual factors that contributed to the assault.

#### Classification scheme

- 1 Altercation**
  - 1.1 Over (alleged) theft
  - 1.2 Traffic altercation
  - 1.3 Over children
  - 1.4 Over gambling
  - 1.5 Over money
  - 1.6 Over politics
  - 1.7 Racial/ethnicity/hate
  - 1.8 Over sex
  - 1.9 Over desertion/terminating a relationship
  - 1.10 Other altercation
- 2 During illegal acquisition or attempted illegal acquisition of money or property**
  - 2.1 Burglary
  - 2.2 Robbery
    - a Strong arm
    - b Armed
    - c Victim is a robber
  - 2.3 Unspecified
- 3 Drug-related**
  - 3.1 Involved selling or drug business
  - 3.2 Argument over possession, use, or cost of drugs
  - 3.3 Involved failure to pay a drug debt
  - 3.4 Other drug involvement
  - 3.5 Probable drug involvement, but no positive evidence
- 4 Sexual assault**

**5 Gang-related**

- 5.1 Gang initiation related
- 5.2 Gang rivalry
- 5.3 Related to illicit gang business

**6 Other**

- 6.1 Blackmail
- 6.2 Ransom
- 6.3 Retaliation/revenge
- 6.4 Victim injured by fleeing felon
- 6.5 Victim interceding in a crime
- 6.6 **(Attempt of)** Mercy killing
- 6.7 Suicide pact
- 6.8 Contract injuring or killing
- 6.9 Drive-by shooting

**9 Undetermined**



### 3.8.5 Precipitating factors for suicide (attempt)

<b>ICECI item</b>	Version 0.2
<b>Required field length</b>	4 digits
<b>Status</b>	Draft
<b>Definition</b>	Factor(s) that may have precipitated the suicide (attempt).
<b>Synonymous</b>	Reason for suicide (attempt).
<b>Context</b>	In many countries self-directed violence contributes to a large number of injuries. However, little is known about the distribution of events that drive a person to commit/attempt suicide. To improve the understanding of self-directed injuries, it is important to collect information about these precipitating factors. Collecting that information will help decision makers to orient their prevention efforts effectively.
<b>Comment</b>	This classification is among the most “exploratory” classifications in the ICECI. Not enough is known about the relationship between the suicide event and some of the factors listed in the classification. Data collected by using this classification may contribute to generate hypotheses to elucidate these relationships.
<b>Guide for use</b>	Use only if the injury resulted from self-directed violence. Based on the best information available, describe the contextual factors, proximate to the event, that describe the reasons for the suicide (attempt). This axis can be coded multiple times (maximum three times) in order to fully describe the contextual factors that contributed to the suicide (attempt).

#### Classification scheme

- 1 Conflict or disruption of relationship with family member or friend**
  - 1.1 with spouse, partner, boy/girlfriend
  - 1.2 with parent
  - 1.3 with child
  - 1.4 with others
- 2 Death of a family member or friend**
- 3 Physical illness**
- 4 Unwanted pregnancy**
- 5 Psychiatric illness**
- 6 Substance abuse**
- 7 Financial problems**
- 8 Work related problems**
- 9 School-related problems**
- 10 Legal system encounters**
- 11 Sexual or physical abuse**
- 12 Suicide of another person**
- 13 Postnatal depression**
- 18 Other specified**
- 19 Unspecified**

#### Classification with inclusion/exclusion criteria

- 1 Conflict or disruption of relationship with family member or friend**
  - 1.1 with spouse, partner, boy/girlfriend
  - 1.2 with parent
  - 1.3 with child
  - 1.4 with others
- 2 Death of a family member or friend**
- 3 Physical illness**
- 4 Unwanted pregnancy**
- 5 Psychiatric illness**
- 6 Substance abuse**
- 7 Financial problems**

8	<b>Work related problems</b>	Included loss of employment
9	<b>School-related problems</b>	
10	<b>Legal system encounters</b>	
11	<b>Sexual or physical abuse</b>	
12	<b>Suicide of another person</b>	Example: cluster
13	<b>Postnatal depression</b>	
18	<b>Other specified</b>	
19	<b>Unspecified</b>	

### 3.8.6 Type of legal interventions

<b>ICECI item</b>	Version 0.1
<b>Status</b>	Draft
<b>Required field length</b>	4 digits
<b>Definition</b>	The type of legal intervention during which a person was injured by a law enforcement officer on duty.
<b>Comment</b>	Health care facilities are not the ideal place to collect information on the circumstances of a legal intervention. Whenever possible, linkage between data collected in health care facilities and data collected by law enforcement agencies should be favoured. However, when this is not a possibility, health care staff could collect the information. In that case, it is of paramount importance to develop very strict confidentiality rules. Specific training for health personnel emphasizing this aspect should be provided before collecting such information in health care settings.
<b>Guide for use</b>	Use only if the victim was injured by a law enforcement officer on official duty. Select the category that best describes the type of legal intervention. If two or more categories are judged to be equally appropriate, select the one that comes first in the code list.

#### Classification scheme

- 1 **Traffic pursuit/stop**
- 2 **Response to a disturbance call**
  - 2.1 family quarrels
  - 2.2 other call
- 3 **Investigation of suspicious person(s)/circumstance(s)**
- 4 **Arrest situation**
- 5 **Ambush situation**
- 6 **Civil disorder**
- 7 **Handling, transporting, custody of prisoner(s)**
- 8 **Mentally deranged**
- 9 **Execution of a legal sentence**
- 10 **Other/Unknown**

### 3.8.7 War-related injuries

No code set has been developed specifically for war-related injuries, primarily because it is difficult to collect data during war-related conditions. It is unreasonable to expect that more than a very limited amount of information can be collected. In addition to the demographic information of the victim (including civilian vs. military status), it would be useful to collect information on the type of war-related condition and the type of weapon used. This information can be captured by already available code sets (intent and mechanism of injury).

## 3.9 Transport module

### 3.9.1 When to code the transport module?

Please code this module when there is some sort of transport factor involved. This is the case when:

- the *Object or Substance Producing Injury* is coded as:

- E** (land vehicles and means of transport),
- F** (special purpose vehicles, mobile machinery),
- G** (water craft and means of transport),
- H** (air craft and means of transport) .

• AND/OR

- the *Activity when Injured* is coded as:

- 1** (paid work: travel to and from work),
- 3** (travelling).

### 3.9.2 Mode of transport

<b>ICECI item</b>	Version 0.7
<b>Status</b>	Draft
<b>Required field length</b>	2 digits
<b>Definition</b>	The mode of transport of a person involved in a transport crash.
<b>Context</b>	Transport crashes involve a reference person, or a vehicle in which the reference person is travelling, usually colliding with one or more other people or objects. This data item enables coding of the mode of transport of the reference person.
<b>Comment</b>	This data element is based on the information on categories V01 to V79 in Chapter XX of ICD-10. Concepts and definitions are unchanged here, to facilitate mapping between ICECI and ICD-10.
<b>Guide for Use</b>	Select the item which best characterises the mode of transport of the injured person. (or other reference person).

#### Classification scheme

- |    |                                  |
|----|----------------------------------|
| 1  | Pedestrian                       |
| 2  | Wheelchair                       |
| 3  | Pedal Cycle                      |
| 4  | Moped                            |
| 5  | Vespa, scooter                   |
| 6  | Motorcycle                       |
| 7  | 3-wheel motor vehicle            |
| 8  | Car taxi                         |
| 9  | Other car                        |
| 10 | Pickup truck or van              |
| 11 | Heavy transport vehicle          |
| 12 | Minibus (< 20 persons)           |
| 13 | Bus (> 20 persons)               |
| 14 | Animal or animal-drawn vehicle   |
| 15 | Railway train or railway vehicle |
| 16 | Streetcar or tram                |
| 17 | Special industrial vehicle       |
| 18 | Special agricultural vehicle     |

19	Special construction vehicle
20	Special all-terrain or off-road vehicle
21	Watercraft
22	Aircraft
28	Other specified transport
29	Unspecified mode of transport

### 3.9.3 Counterpart

<b>ICECI item</b>	Version 0.6
<b>Status</b>	Draft
<b>Required field length</b>	2 digits
<b>Definition</b>	The vehicle, person or object with which a transport crash occurs.
<b>Context</b>	Most transport crashes involve a person or a vehicle colliding with one or more other people or vehicles, or with other objects. These 'other' parties in a collision may be described as 'counterparts'. This data item enables the type of counterpart to be coded.
<b>Comment</b>	This data element is based on the information on counterparts embodied in categories V01 to V79 in Chapter XX of ICD-10. Concepts and definitions are unchanged here, to facilitate mapping between ICECI and ICD-10.
<b>Guide for Use</b>	Select the item which best characterises the counterpart of the injured person, or of the vehicle in or on which the injured person was travelling.

#### Classification scheme

1	Pedestrian
2	Animal
3	Pedal Cycle
4	2- or 3-wheel motor vehicle
5	Car, pickup truck or van
6	Heavy transport vehicle or bus
7	Railway train or railway vehicle
8	Other nonmotor vehicle
9	Fixed or stationary object
10	Crash without collision with a counterpart
11	Other or unspecified counterpart

### 3.9.4 User

<b>ICECI item</b>	Version 0.5
<b>Status</b>	Draft
<b>Required field length</b>	1 digit
<b>Definition</b>	Role of a person in using a means of transport.
<b>Context</b>	People in or on means of transport occupied one (or more) roles, distinction of which may be important for injury analysis and prevention. Very commonly distinguished roles are driver (or similar roles, such as pilot or rider) and passenger.
<b>Comment</b>	This data element is based on transport user information in categories V10 to V79 in Chapter XX of ICD-10, to facilitate mapping between ICECI and ICD-10.
<b>Guide for Use</b>	Select the item which best characterises the transport context of the injured person.

#### Classification scheme

1	Driver or rider
2	Passenger
3	Person boarding or alighting
4	Person on the outside of the vehicle
5	Bystander to the vehicle
9	Unspecified transport user role

### 3.9.5 Context

<b>ICECI item</b>	Version 0.5
<b>Status</b>	Draft
<b>Required field length</b>	1 digit
<b>Definition</b>	Whether injury related to transport resulted from a crash, etc in traffic, or a crash elsewhere, or did not involve a crash.
<b>Context</b>	Vehicles may be involved in the occurrence of injuries in several ways, identification of which may be important for prevention. They may crash while engaged in road traffic. They may crash while being used in other contexts (eg off-road travel). In addition, vehicles may be the site of injuries not related to crashes or malfunction of the vehicle (eg fall within an aircraft; drowning after falling from a ship, suicide in a car by means of exhaust gas).
<b>Comment</b>	This data element is based on information in categories V01 to V99 in Chapter XX of ICD-10, to facilitate mapping between ICECI and ICD-10. The traffic/nontraffic distinction is necessary for mapping to V01 to V79. 'Vehicle as a site' enables mapping to several water transport categories.
<b>Guide for Use</b>	Select the item which best characterises the transport context of the injured person.
<b>Classification scheme</b>	
1	Non-traffic
2	Traffic
3	Vehicle is site of injury event
8	Other specified context
9	Unspecified context

## Appendix 2a : List of 100 case scenarios

### Scenario 1

A housewife accidentally fell off a pool ladder when the family dog jumped at her while she was climbing out of the pool after playing with her children. She struck her head on the metal of the steps and lacerated her scalp.

### Scenario 2

A 15-year old student on holiday slipped on the stairs while climbing up the inside of a scenic lighthouse and fell onto his hands. He sustained a sprained wrist.

### Scenario 3

A 26-year old motorcyclist accidentally hit a stationary motor car on a street while on the way to meet some friends. He sustained a suspected fractured leg and wrist. He denied having used any alcohol, did not smell of alcohol and his speech was normal and coherent.

### Scenario 4

A man returns to the emergency department to have a burn on his left forearm redressed. He first attended yesterday after being splashed accidentally with a corrosive chemical while working in a nearby factory.

### Scenario 5

A teenager fainted at a general practitioner's rooms following a vaccination injection and suffered a suspected internal head injury.

### Scenario 6

A part-time guide dog trainer, while feeding the dogs she was training, fell to the ground after she was knocked over by a playful dog in the backyard of her home. She had a suspected fracture of the wrist and knee abrasions.

### Scenario 7

A 72-year old pensioner collapsed back into his chair while standing up from it at home. He had a history of cardiac problems and recently started taking a new medication for his hypertension.

### Scenario 8

The patient, a store manager, was injured after he tried to apprehend a shoplifter. When the patient confronted the person, the shoplifter ran out of the shop to his car standing in the street. The patient pursued him and grabbed the shoplifter who bit him on the arm and, during the struggle that followed, slammed the car door on the patient's arm. The patient sustained lacerations and contusions to his arm.

### Scenario 9

A 3-year old preschooler was watching her sibling on a swing in the backyard of their home, the swing became unhinged from ground and fell onto the child. She is suspected to have sustained abdominal injuries.

### Scenario 10

A teenage student intentionally cut her own wrists with a knife in the schoolyard.

#### Scenario 11

A woman was a passenger in a motor car and was on her way to a party. The vehicle in which she was travelling was waiting at some traffic lights, but was hit by an oncoming motorcycle. She sustained several injuries, including bruised ribs.

#### Scenario 12

An 18-year old male was involved in an altercation over money with his brother at home. He became very dizzy during the argument. A diagnosis of acute anxiety was made.

#### Scenario 13

A 12-month old toddler was playing when she tripped and fell with outstretched hands onto a heater in the living room of her home, burning both palms of her hands.

#### Scenario 14

A drinks waiter at a hotel cut his finger on a bottle opener while attempting to open a bottle of red wine.

#### Scenario 15

A student collided with another player while attempting to grab the ball during a formal football match on the university grounds. He fell, injured his wrist and suffered a brief loss of consciousness.

#### Scenario 16

A 14-year old girl injected herself with her mother's heroin at home following a fight with her boyfriend. Her mother found her unconscious some time later and phoned the emergency number. The cause of the disagreement was that the girl suspected that her boyfriend was unfaithful to her.

#### Scenario 17

A 3-year old boy was brought to the emergency department by his mother. She reported that he was bitten on the left cheek and had his penis pinched by his father, while she wasn't at home. The boy complained of pain and ecchymosis of his cheek and a linear abrasion of the penis were noted. The mother mentioned that the father has assaulted the boy before.

#### Scenario 18

A retired 62-year old accidentally fell off a ladder onto some rose bushes while cleaning out the gutters at home. He became dizzy before the fall and it is known that he is on anti-hypertensive drugs that are thought to cause a drop in blood pressure. He sustained a sprained ankle and some cuts and grazes.

#### Scenario 19

A 14-year old male fell off a skateboard onto his arm at a skateboard ramp in a park while attempting to do a jump. He was trying to show off to his friends, while they were hanging out together. He sustained a fractured forearm.

#### Scenario 20

A teacher threatened a student and pushed her against the wall of the classroom. He also threatened to shoot her. The student went nuts and beat him up. She slammed his head against the wall about three times and the teacher was treated for concussion.

#### Scenario 21

A storeman working in a supermarket injured his back while lifting a heavy box off a shelf. He has been treated for chronic lower back pain in the past.

#### Scenario 22

A university student, who consumed a large amount of alcohol, accidentally ran through a closed glass door at a party. The party was held at a local bar room/pub.



#### Scenario 23

A housewife was found unconscious after inhaling chemical fumes while cleaning the oven at home.

#### Scenario 24

During the morning break at school, several children drank water from the water fountain and presented at hospital with upset stomachs. Investigations revealed that the water had unusually high levels of chlorine.

#### Scenario 25

A woman was in her yard putting away some plants during a hurricane. The strong winds caused a piece of galvanised iron to break off from a neighbour's roof. This cut the patient on her leg.

#### Scenario 26

A 44-year old welder suffered severe eye pain after using a welding torch without protective eye goggles. He was working on a new building site.

#### Scenario 27

A 31-year old male was involved in a fight one week ago. During the fight he was pushed and bumped his head on the cement. He sustained a contusion to his scalp and now complains of persisting headaches. He did not seek treatment at the time and could not remember exactly where the incident took place, as he was intoxicated at the time.

#### Scenario 28

A 10 month-old child was playing on the floor and sustained burns to the chest after pulling a cup of tea off the table at home.

#### Scenario 29

A 16-year old student was very angry and left his home following a disagreement with his parents over a girlfriend. He drove a car through a red light hitting another car and resulting in a roll-over crash. He had several cuts and bruises.

#### Scenario 30

The patient fell backwards out of a wheelchair at home and hit the floor. She stated that her husband abuses her and that she wanted to kill herself. She sustained a contusion to her lower back. She was also referred for psychiatric treatment.

#### Scenario 31

While sleeping at home, an eighty-year old female fell out of bed during the night and hit her head on the bedside table. Her husband found her unconscious next to the bed in the morning. She was on an anticoagulant drug and sustained a large scalp haematoma, as well as suspected internal head injuries.

#### Scenario 32

A 31-year old man, while suspected to be under the influence of illegal drugs, drove a car onto the wrong side of the road and hit an oncoming bus. He sustained a suspected pelvic fracture.

#### Scenario 33

A 90-year old pensioner collapsed at home and was found several hours later by her son. She was semi conscious and dehydration was suspected, as her home was not air-conditioned and the weather temperature had been around 40 °C (104 °F) for several days.

#### Scenario 34

A 2-year old child was playing with other children at a child care centre when another child pushed a small piece of toy into the child's ear.

#### Scenario 35

A 19-year old male was injured in a park during a brawl involving members of two gangs. He was stabbed with a knife in the chest. The fight was believed to be a retribution for injuries sustained by a gang member from another gang during a previous gang fight. No enquires about alcohol use were made.

#### Scenario 36

A 31-year old unemployed female with no fixed address was sleeping on the ground in a park when a council vehicle, i.e. a heavy 2 ton van/truck, at slow speed hit her. She had several fractures and bruises.

#### Scenario 37

A 43-year old unemployed male was intoxicated and fell asleep with a lighted cigarette in his hand. This resulted in a house fire and the patient was pulled from the home with burns and smoke inhalation.

#### Scenario 38

A man sustained several bruises and cuts after resisting arrest by a police officer. The patient was apprehended during a break-in at a private home.

#### Scenario 39

A four-year-old boy was climbing the tile steps in a hotel pool. He slipped and hit his head on the steps. This resulted in a superficial facial laceration.

#### Scenario 40

A man rode a pedal cycle on the roadway after consuming several alcoholic drinks. He lost control and fell off the bicycle. He did not suffer any injuries, but bystanders were concerned and took him to the emergency department.

#### Scenario 41

A 25-year old unemployed male sustained some bruising after hitting his head and fists against the cell door while in police custody.

#### Scenario 42

A seven-year-old boy was driving an all terrain vehicle (ATV) through a ditch on a sheep farm. The ATV rolled and his leg was bent back. He sustained a fractured femur.

#### Scenario 43

A 78-year-old man was cutting down a tree on his own property. The tree bounced off another branch and fell the wrong way. The trunk pushed the man down and it landed on his ankle. He sustained a fractured ankle.

#### Scenario 44

During a coup, police attempted to deter looters by shooting their automatic rifles into the air. One stray bullet entered the kitchen of a home nearby, striking a 56-year old lady who was preparing lunch.

#### Scenario 45

A 17-year old male was allegedly assaulted by an unknown intruder during an attempted house invasion. The victim received several kicks to the head and chest, as well as a knife wound to the head during the struggle. No enquires about alcohol use were made.

#### Scenario 46

A 13-year old student ingested an unknown amount of unknown tablets at a party at home. She was one of a group of friends who took some Ecstasy tablets provided by an older friend. She collapsed and could not be roused. An ambulance was called and she was found to be in cardiac arrest on arrival of the ambulance staff. Her friends mentioned that she had ingested alcohol as well.

#### Scenario 47

An 18-year old farm worker suffered a gunshot wound to the head when a handgun discharged while he was cleaning it in the farmshed where he was working

#### Scenario 48

A 10-year old child fell off the top of the monkey bars in the playground at her school during lunchtime. She had some contusions.

#### Scenario 49

A teenager, while horse riding at a school camp in the mountains, fell off the horse when his foot slipped out of the stirrup. A spinal cord injury is suspected.

#### Scenario 50

A man was showering and bent to pick up the soap that had fallen. He hit his head against a ceramic soap dish that broke on impact. He was dizzy because of the blow to the head and cut his foot when he trod on the pieces of the soap dish.

#### Scenario 51

A motor mechanic was shot in the arm during a shooting at the commercial garage where he was working. The assailant shot himself after shooting at the workers. He was a previous employee at the garage, but was recently dismissed.

#### Scenario 52

A diabetic student collapsed after injecting himself with an excessive dose of insulin.

#### Scenario 53

A 15-year old fell out of trailer that was being towed by a car in the drive of his home, he hit his head on the cement and was then hit by the trailer. He sustained a fractured skull.

#### Scenario 54

A high school student was performing a high jump in the sports class when he hit a bar and landed on the mat, elbow first. The deformity of joint suggests a fracture.

#### Scenario 55

A 35-year old housewife was assaulted by her husband during a dispute over money at home. The husband is known to have a psychiatric illness but he stopped taking medication. His wife said that he was drinking before the incident occurred and that he often abuses her. The wife received several punches and a stab wound to the chest.

#### Scenario 56

A 95-year old pensioner was holding the ladder for his wife while she was changing a light bulb. She slipped and fell off the ladder, landing on her husband, who also fell to the floor. The husband was unable to move any limbs and complains of neck pain, a spinal injury is suspected.

#### Scenario 57

A two-year-old girl was about to run out onto the street while waiting at a pedestrian crossing. Her mother grabbed her by the hand to pull her back. The child sustained a pulled elbow.

#### Scenario 58

A 35-year old male was rock climbing in a national park. He fell approximately 4 feet, hitting his head on some rocks as he fell. A safety harness and some ropes prevented him from falling further. He suffered a head injury.

#### Scenario 59

A 14-year old male sustained a gunshot wound to his right calf while on his way home after school. He stated that he was walking through an alley when he heard some shots and a stray bullet hit him. He claims not to have seen the perpetrators.

#### Scenario 60

A self-employed businessman presented at hospital after being found confused and agitated by coworker at his place of employment. Several empty packets of sedatives were found next to the patient. Suspected reason for his state was an overdose due to work pressures.

#### Scenario 61

A 78-year old pensioner collapsed at a shopping centre but was awake on arrival of ambulance staff. His family practitioner had increased his anti-hypertensive medication two days prior to the incident. This was thought to have been the cause.

#### Scenario 62

A 17-year old high school student was competing in a mountain bike competition on the weekend, lost control and fell off the bicycle while going down a steep hill at speed. He was thrown over the handle bars and landed on his head. He was wearing a helmet but was unconscious.

#### Scenario 63

An elderly gentleman was tending his garden, when a volcano erupted. He fled before the oncoming lava but still sustained burns to his legs and back, as well as smoke inhalation.

#### Scenario 64

A 14-year-old boy was riding his bike on a side road (there were no houses nearby). He rode into a cable that was across a gateway. The cable caught him in the throat. He was also thrown headfirst from the bike. He sustained an open wound to his face and a possible fracture of the hyoid bone (neck).

#### Scenario 65

A 29-year old mentally impaired resident of an institution sustained self-inflicted knife wounds to wrist. Patient was unable to verbalise a reason for his action.

#### Scenario 66

A police officer was involved in a fight with another officer at the police station, while on duty. The patient was punched in the nose and had lacerations on his left eyebrow and eyelid. The altercation was about a disagreement regarding work procedures.

#### Scenario 67

A woman alleged that she was raped in the early hours of the morning. A male acquaintance spent the night at her house. She woke up with him on top of her. Diagnosis: rape.

#### Scenario 68

A 14-year-old girl was getting high with friends. She ingested four rocks of crack (cocaine) and she also consumed alcohol. She collapsed and could not be roused by friends.

#### Scenario 69

A 21-year-old woman was driving on the highway. She was passing a car and over-corrected when moving over to the side and went into a ditch, landing upside down. She sustained superficial injuries to her face and chest.

#### Scenario 70

A 17-year-old man was playing in an organised game of ice hockey at an arena. The toe of his blade got caught in the ice and he fell into the boards on the side of the rink. He sustained a muscle or tendon injury of his ankle.

#### Scenario 71

A tourist, tripped, fell and sustained an ankle injury while bush walking in a national park. He was not found till the next day, hypothermia suspected.

#### Scenario 72

A man was shot by a police officer with a 9mm hand gun at close range in an apartment building. The entry wound is on the right side of the abdomen and the bullet exited right mid-line of back. The patient was allegedly buying drugs and officer wanted to arrest the man.

#### Scenario 73

A man was hit by a car in a parking lot. The driver of the car got out and beat him up. The patient had several bruises and abrasions, as well as a laceration to the left ear. The patient found sitting on the sidewalk.

#### Scenario 74

A 14-year-old boy was go-kart racing at a racetrack during a formal competition. His kart spun out of control and he crashed into bales of hay next to the track. He sustained superficial injuries to his chest and lower back.

#### Scenario 75

The patient was drinking with friends at a friend's house. He thinks the drinks had drugs in them. He now complains of abdominal pain, nausea and vomiting. The diagnosis was 'Possible ingestion of unknown drug(s)'.

#### Scenario 76

A man was mowing the lawn, when he developed a weakness in his upper left leg. He was in a serious motor vehicle accident not too long ago where he sustained an injury to this leg

#### Scenario 77

A man, who had been tried and convicted for carnal knowledge of a minor, was ordered by a judge to undergo psychiatric evaluation before sentencing. While in the relevant section of the mental hospital, he attempted to hang himself with some bed sheets. He sustained some abrasions to his neck.

#### Scenario 78

A 37-year old male was run over by his tractor while working on his wine farm. The incident occurred two days prior to his attending the emergency room. He sustained a crushing injury to both legs, as well as multiple abrasions.

#### Scenario 79

A male security guard had a car door slammed on his arm by perpetrators, while he was on duty in a store parking lot. This happened because the security guard apprehended the men while they were loading goods into their car. He sustained a contusion to his forearm.

#### Scenario 80

A man ate some chicken at a restaurant. Afterwards he suffered from food poisoning, with abdominal cramps and loose stools.

#### Scenario 81

A young man was working in a radiator shop when a car ran into him, pinning his leg against the wall of the shop. He had a contusion to his lower leg.

#### Scenario 82

At a public party in the street, security was provided by a private agency which used pitbull dogs for crowd control. One dog escaped its handler and jumped at one of the patrons in the ticket queue, snatching a two-year old child from its mother's arms. The child was rescued but sustained gashes on her legs and superficial cuts and bruises elsewhere. These were treated at the hospital, as was the mother for shock.

#### Scenario 83

During a hurricane a couple attempted to cross a bridge, that was under water, in their car. The raging torrent swept the car out to the sea. The woman was extracted from the vehicle and responded to resuscitation attempts.

#### Scenario 84

A 13-year old male ingested barbiturates and cut himself with knife in an attempt to commit suicide at home. He had a history of depression.

#### Scenario 85

A child, resting at home, was bitten by a spider.

#### Scenario 86

The patient was driving a cable car at work, when the passenger with him punched the patient in his mouth, knocking out the patient's upper bridge. Diagnosis: Dental avulsion.

#### Scenario 87

A woman was injured at work in a factory, when a cord she was using flipped back, hit her in eye and broke her contact lens. She sustained some abrasions to her cornea.

#### Scenario 88

A woman, who has cleaned private houses for the last 15 years, bent to pick up a bucket with 10 litres of hot water. She was cleaning at home, but when she straightened her back again, she couldn't move because of backache.

#### Scenario 89

Two boys (aged about 14 years) were horsing around in a classroom after school. One boy pushed a table towards the other boy, who pushed the table back. The table hit the first boy who fell backwards and hit his head on the floor. He had a severe head injury.

#### Scenario 90

A 22-year-old recruit was engaged in a military exercise in an open field. While being chased by the "enemy" she fell to the ground and fractured her elbow.

#### Scenario 91

The patient was assaulted by police, who hit him with clubs. This was during a demonstration when people marched through the streets. He had head swelling, contusion to his neck and abrasions.

#### Scenario 92

A patient was brought in by ambulance. He was unresponsive and the cause was possible carbon monoxide poisoning. The patient's wife found him in the garage with the car running. He had drunk about 3-4 quarts of vodka.

#### Scenario 93

A young man entered a train completely drunk after a party. When he walked towards a vacant seat the train started to move. Because of that and his uncontrolled movements, he hit his head against the train door. This caused a head injury.

#### Scenario 94

A security officer kept an eye on a suspect of shoplifting in a supermarket. He followed the suspect outside on the sidewalk. The suspect turned around and threw a one-kilo box of sugar at the officer. The carton hit his neck causing a neck injury.

#### Scenario 95

A man cut the clothesline and tried to hang himself with it because his girlfriend wasn't coming home. Diagnosis: contusion neck. There was no evidence of alcohol or drug use.

#### Scenario 96

An eight-year-old boy was walking through the schoolyard on his way home. He was picked up by an older boy and dropped on his head. (This is apparently called "Doing the Tombstone.") He sustained a minor head injury.

#### Scenario 97

A 42-year-old man was working in his neighbour's yard as a general contractor. He was using a table saw to trim floor pieces when a piece of wood "kicked" and pushed his fingers into the blade. He suffered lacerations of two fingers.

#### Scenario 98

A seven-month-old boy was at the doctor's office. He was wriggling and squirming more than usual as he had his diaper changed and fell 4 feet to the hard floor, landing on his head. He sustained a minor head injury.

#### Scenario 99

A 50-year old male sustained a gunshot wound to the head. He has shot himself with a shotgun because his wife left him.

#### Scenario 100

An 11-year-old girl was walking to her friend's house with her sister. Two boys started chasing the girls and throwing rocks at them. She sustained an eye injury and an open wound of her face.

## Appendix 2b : Example of coding form

### Scenario 1

<b>A housewife accidentally fell off a pool ladder when the family dog jumped at her while she was climbing out of the pool after playing with her children. She struck her head on the metal of the steps and lacerated her scalp.</b>					
<i>Data element</i>	<i>Code</i>				<i>Comments/Notes/Suggestions</i>
Intent					
Direct Mechanism of injury			.		
Contributing Mechanism of injury			.		
Direct Object/ substance					
Contributing Object/ substance 1					
Contributing Object/ substance 2					
Place of occurrence					
Activity when injured					
Alcohol use					
Other psychoactive drug use					
<b>Violence case (Intent = interpersonal):</b>					
Relationship victim/perpetrator			.		
Context for assault			.		
<b>Suicide (attempt) (Intent = intentional self-harm):</b>					
Precipitating factors			.		
<b>Intent = legal intervention:</b>					
Type of legal intervention			.		
<b>Transport:</b>					
Mode of transport of patient					
Counterpart					
User					
Context					
Coding time in minutes				1	
<b>General comment:</b>					



# Appendix 3 : Participant Questionnaire

## Dear Participant

*(If more than one person participated in the scenario testing, please copy this form and complete one for each participant)*

**Please take a minute and complete this form. We appreciate your feedback.**

***These data are optional. You do not have to provide it, but if you would like to be kept informed about the ICECI process, please complete.***

1 Name

---

2 Organisation

---

3 Mailing address

---

---

---

4 Telephone number

---

5 Fax number

---

6 E Mail (if applicable)

---

***Please answer all the following questions, even if you did not provide your personal details.***

7 How did you conduct the case scenario testing? (e.g. did you collaborate with two other persons and together completed the case scenario document, etc.)

---

---

---

---

8 What is your opinion of the documents used in the case scenario testing?

Guide:

---

Test set:

---

Index:

---

Questionnaire:

---

9 Do you have any other comments, either on the ICECI or the case scenario testing?

---



---



---



---

**Please tick all that apply in the following table**

<b>Do you specialise in a particular (injury) field?</b>	Home and leisure injury	
	Traffic injury	
	Sports injury	
	Work-related injury	
	Interpersonal violence	
	Suicide	
	Injury epidemiology	
	Injury surveillance	
	Data coding by means of specialised injury data systems	
	Data coding by means of general health classifications	
	Health care	
	Other (please specify)	
<b>Which of these data classifications systems are you somewhat familiar with?</b>	ICD-9, ICD-10 (International Classification of Diseases, WHO)	
	EHLASS (European Home and Leisure Accident Surveillance System)	
	CHIRPP (Canadian Hospitals Injury Reporting and Prevention Program)	
	NDS-IS (National Data Standards for Injury Surveillance, Australia)	
	CHIRPP (Canadian Hospitals Injury Reporting and Prevention Program)	
	NOMESCO Classification of External Causes of Injuries (Nordic Medico Statistical Committee, Scandinavia)	
	UEDDS (Uniform Emergency Department Data Set, USA)	
	NEISS (National Electronic Injury Surveillance System , USA)	
	Other (Please specify)	
<b>Which of these data classifications systems do you USE regularly NOW?</b>	ICD-9, ICD-10 (International Classification of Diseases, WHO)	
	EHLASS (European Home and Leisure Accident Surveillance System)	
	CHIRPP (Canadian Hospitals Injury Reporting and Prevention Program)	
	NDS-IS (National Data Standards for Injury Surveillance, Australia)	
	CHIRPP (Canadian Hospitals Injury Reporting and Prevention Program)	
	NOMESCO Classification of External Causes of Injuries (Nordic Medico Statistical Committee, Scandinavia)	
	UEDDS (Uniform Emergency Department Data Set, USA)	
	NEISS (National Electronic Injury Surveillance System , USA)	
	Other (Please specify)	
<b>Do you currently code data?</b>		
<b>How long have you been doing this?</b>		
<b>Did you code data in the past?</b>		
<b>For how long?</b>		
<b>Prior to this project and receiving the June draft of the ICECI, how familiar were you with the ICECI?</b>	Totally unfamiliar	
	Aware of the process, but did not see any drafts of the ICECI	
	Saw the original ICECI draft of April 1998 (blue book)	
	Worked with the original ICECI draft of April 1998 (blue book)	
	Other Please specify	

**Thank you for your time**



# Appendix 4 : ICECI Case scenario guide

(Version MS3 1999-07-30)

## 1. Introduction

The International Classification of External Causes of Injury (ICECI) is intended to provide coding structures and definitions to enable:

- the identification of 'injury' cases among all cases attending a particular health service; and
- the classification of identified injury cases according to important aspects of their causes and the circumstances in which they occur.

Ideally, users of the ICECI will identify all those cases that meet a standard definition as 'injury' (and only those cases); and will classify the causes and circumstances of these cases correctly and consistently.

The aim of the case scenario testing is to learn how well the current draft of the ICECI performs and to guide further revision and development.

## 2. The documents you need

You have indicated that you are willing to participate in the case scenario testing, therefore you will have received the following four documents by e-mail:

- This **Guide** that informs you on how to code the scenarios (Guide\_CS.rtf)
- A **Test set** of 100 case scenarios (Testset.rtf)
- An **Index** for one data element, i.e. for Object/substance (Index.xls)
- A short **Questionnaire** on your experience regarding the coding of the scenarios (PartQues.rtf)

For the coding, you will also need the ICECI **Data Dictionary** (r002a.h3) and **Glossary** (r002a.h3). (The Consumer Safety Institute in the Netherlands sent these two chapters as one document by surface mail to those participants recruited during May and June. For those who joined the project later, the two chapters have been sent as electronic documents via the CASESCEN helpline. *Please inform me if you would like to receive a hard copy of these documents by surface mail.*)

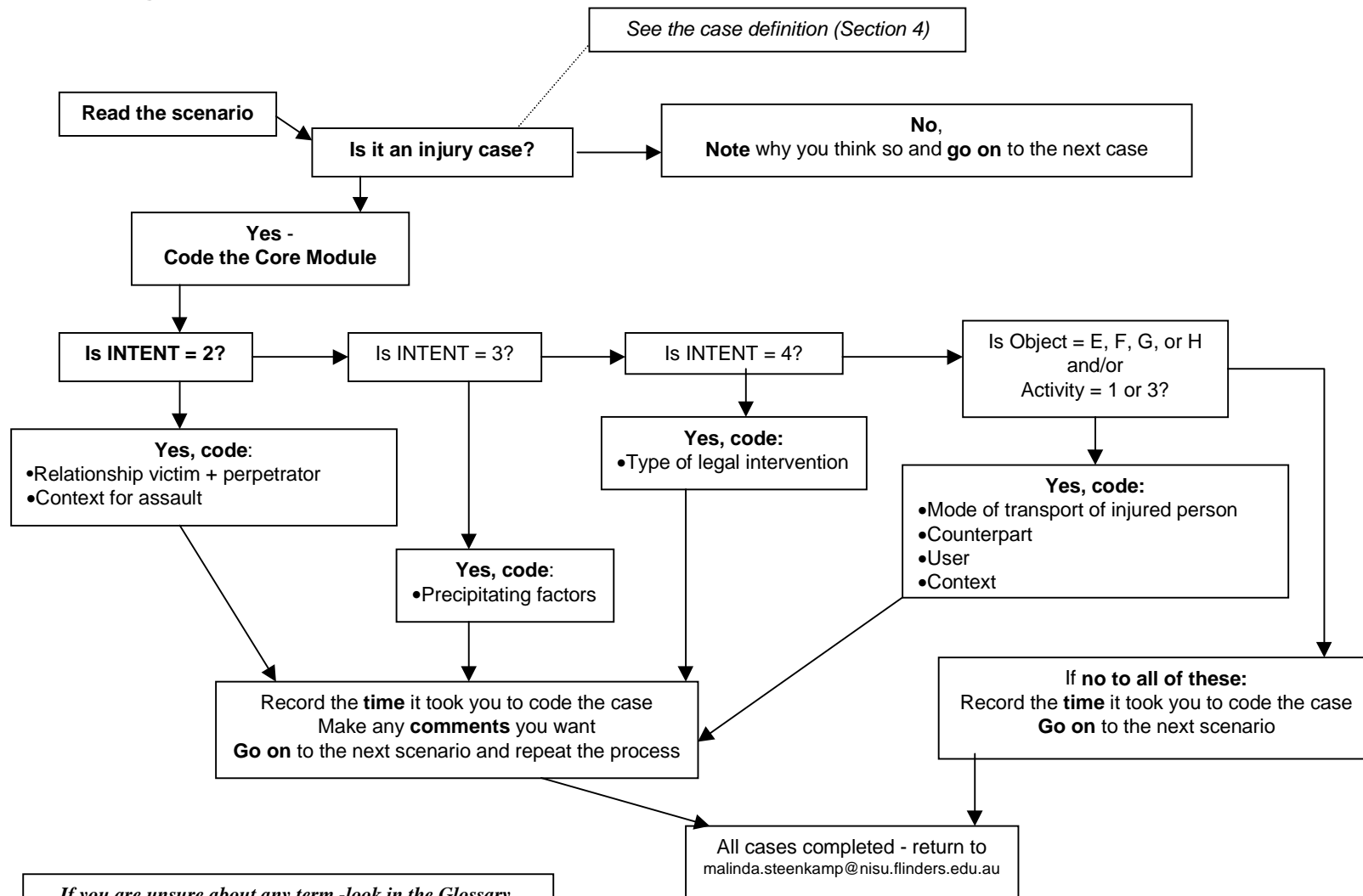
**If you have not received all of these documents, or if you have problems in reading the electronic files, please let me know at [malinda.steenkamp@nisu.flinders.edu.au](mailto:malinda.steenkamp@nisu.flinders.edu.au).**

## 3. Coding the case scenarios

The diagram on the next page tells you how to go about coding the information. You only need to read this and the case definition (Section 4). *If you have trouble reading the diagram, see Section 6.*

If you want more information on the ICECI, see Section 5. Examples of coded cases and some test cases have been provided in Sections 8 and 9.

## Coding the scenarios



*If you are unsure about any term -look in the Glossary.  
For more information see Section 5 and 6 of Guide.*

## **4. Which cases should be coded? (Case Definition)**

### **A case is coded in the Test set if:**

The reason for the attendance to the emergency department (ED) is:

- any injury (as defined below) OR
- an event that might have produced an injury.
- It is the first attendance due to a particular injury or event.

### **Definition of the term ‘injury’**

Injury is a bodily lesion at organic level resulting from acute exposure to energy interacting with the body in amounts or rates that exceed the threshold of physiological tolerance. The energy can be mechanical, thermal, electrical, chemical, or radiant. In some cases an injury results from an insufficiency of any of the vital elements (in drowning, strangulation, or freezing). The time between exposure and the appearance of the injury needs to be short (a few minutes).

### **Include the following cases for this testing exercise:**

blunt and penetrating injuries, blast or explosion injuries, burns, electrical or radiation injuries, bites, stings, aspiration of foreign objects, foreign objects entering body orifices, poisonings, toxic exposures, drownings, near-drownings, strangulations, exposures to environmental extremes, bodily overexertions or strains, drug overdoses, alcohol poisonings, maltreatment, child abuse, assault, sexual assault, suicide attempts, intentional self-harm incidents, adverse drug reactions, and adverse effects of medical care.

### **First attendance**

The restriction to first attendances enables data collectors to estimate the incidence of injuries. If first and 'repeat' cases (e.g. attendances for new dressings, check on progress) are included, one is estimating the total service load. If one aims to study both, i.e. the number of new cases and the total service load, it is necessary to record information on all injury attendances and to flag the first attendance. For the case scenario testing, we are only interested in first attendances.

### **What about 'intent'?**

The role of human intent in the occurrence of an injury has no bearing on its inclusion for purposes of collection injury data for surveillance purposes. All cases should be included, i.e. whether they were thought to be unintentional or intentional, and whether they were self-inflicted or inflicted by another person.

Examples of cases to be included:

- While riding a bike on the way to work a man was hit by a car and broke his leg. He was brought to the ED by an ambulance.
- A child of four years old fell of a chair at home and complained about pain in her wrist. Her mother brought her to the ED.
- A metalworker got a metal splinter into his left eye when he was at work. The next day his eye was very painful and he came to the ED.
- A woman playing an official outdoor volleyball game sprained her ankle when she hit the surface after she jumped. She went to the General Practitioner, who sent her to the ED.
- In prison a prisoner sentenced to life imprisonment tried to commit suicide by burning himself with gasoline. He was brought to the ED by ambulance with severe burns on his whole body.
- A woman was beaten by her ex boyfriend using a baseball bat, outside her home on the street. The man was angry because she had left him. She came to the ED with a head injury.

**A case is not included in the coding test if:**

- The reason for the attendance to the ED are symptoms of acute illness or disease: e.g. a cough or fever attributed to a cold or other viral infection, epilepsy, heart attack, diabetes, pulmonary embolism, mental injury, migraine attack, chronic back pain, repetitive strain injuries, anxiety or chronic depression, chronic alcoholism or drug abuse, pain with no evidence of acute injury, aspiration of vomitus or mucous.
- The reason for the attendance to the ED is a medical checkup or a follow-up treatment: e.g. plaster/cast control.

Examples of non-cases:

- A drug addict with a psychosis was found at the ED.
- A boy who broke his arm last week and was treated for this and came to the ED for a check-up.
- Person brought in by concerned neighbours because patient was very anxious after a disagreement with her husband.
- Person suffering from chronic depression with suicidal ideation only.
- Person referred for alcohol or drug detoxification.
- Person with headache or back pain with no specified cause or exposure.

## 'Difficult' cases

A small number of cases may present definitional difficulties. Some examples and recommended responses are given in the following table.

TYPE OF CASE	EXAMPLE	RECOMMENDED RESPONSE
Exacerbations of chronic conditions	Certain types of painful muskulo-skeletal conditions	Sudden recurrences or acute exacerbations can be regarded as new events for the purposes of the 'first attendance rule'.
Iatrogenic injury	Adverse effect to a medication, poisoning due to error in dose, effects of surgery	Attendances due to the effects of medical treatment should be included.
Delayed presentation	A welder presents with a long-standing eye irritation. On investigation, this is found to be due to a fragment of metal in his eye. He has not been treated for this before.	Cases otherwise satisfying the case definition should not be excluded simply because the patient has not 'first presented' until some time after the injury occurred.

## 5. More information about the Data Dictionary and the Glossary

The Data Dictionary contains the lists of codes to be used and concerns three MODULES (*also see the first page of the Data Dictionary*):

### 1. The **CORE MODULE**

This module has to be completed **for all injuries** and consists of six data elements:

- Intent to injure
- Mechanism of injury
- Objects/substances producing injury (because of the long list of codes for this item, we have provided an index to assist you in coding this data element quicker)
- Place of occurrence when injured
- Activity when injured
- Alcohol and drug use

### 2. The **VIOLENCE MODULE** which consist of:

- two data elements for assault cases
- one data element for self-harm injuries
- one data element for legal intervention cases

The coding of the 'Intent' data element determines which components, if any, of the Violence Module should be coded. The relationship between the classifications of the data element 'Intent' and the Violence Module are shown in Table 1.



### When to code the Violence Module

Coding of Intent	Components of the Violence module that should be coded
If Intent=2 ( <i>Interpersonal injury</i> )	Please code: <i>Relationship between victim and perpetrator and Context for assault</i>
If Intent=3 ( <i>Intentional self-harm</i> )	Please code: <i>Precipitating factors</i>
If Intent=4 ( <i>Legal intervention</i> )	Please code <i>Type of legal intervention</i>

### 3. The **TRANSPORT MODULE** which should be completed for transport injuries:

Please code this module when **there is some sort of transport factor** involved. This is the case when:

1. the *Object or Substance Producing Injury* is coded as:
  - **E** (land vehicles and means of transport),
  - **F** (special purpose vehicles, mobile machinery),
  - **G** (water craft and means of transport),
  - **H** (aircraft and means of transport).

AND/OR

2. the *Activity when Injured* is coded as:
  - **1** (paid work: travel to and from work),
  - **3** (travelling).

### The Glossary

More information on definitions and synonyms of the data elements can be found in the glossary (i.e. Chapter 5 of ICECI). The glossary gives an alphabetic list of terms with definitions, synonyms and notes and will clarify the 'language' used in the ICECI.

Terms marked with an \* in the Data Dictionary can be found in the Glossary.

## 6. Information about coding the scenarios

The coding can be done by one person, by different individuals or by a group of people. Please advise us of how the coding was actually done when you return the coded scenarios and the attached questionnaire. (The questionnaire also asks about the scope and extent of your experience with coding data.)

### Please follow these steps in coding the data

(See Sections 7 and 8 for examples and exercises)

*Feel free to use the glossary when terms are unclear.*

1. Read the case scenario provided.
2. Decide whether the patient meets the case definition for an injury (see Section 4).
3. (i) If it is an injury case, complete the coding form for the *Core Module* by using the Data Dictionary (Chapter 3). You will notice that there is a column available for each digit of the code and, where appropriate, for the decimal point.

**Tip: Use coloured tabs to index various sections of the Data Dictionary - this will save you paging back and forth! Also, use the Index to code the Object data element.**

- (ii) If it is not an injury case, please note on the form why you think so and go on to the next scenario.
4. For the injury cases, check whether the *Violence Module* or the *Transport Module* applies.
5. If one (or maybe both) of them do, complete the coding form for the appropriate data elements (See Section 5).
6. Record any comments, notes or suggestions in the column provided.
7. Write the approximate time (in minutes) that it took you to complete the coding form.
8. Feel free to record any further comments, notes or suggestions in the space provided at the bottom of the form.
9. Repeat these steps for all 100 case scenarios.
10. Once you have completed all the scenarios, please return the document to us. This can be done by surface mail to the address below or by e-mailing it to [malinda.steenkamp@nisu.flinders.edu.au](mailto:malinda.steenkamp@nisu.flinders.edu.au)

## **7. Helpline and contact details**

We sincerely thank you for your participation in this project. Your input will shed light on how appropriate the ICECI is for coding injury data and is, therefore, a very important part of the testing of the ICECI.

### **Helpline**

A closed discussion list/helpline CASESCEN has been created for your convenience and you have been subscribed to it. (If you have any objection to this, please inform me.)

Most of the relevant testing documents have been sent to you by this route, but the list mainly provides you with the opportunity to discuss problems or questions regarding the coding. These discussions may also be useful for other participants who might be dealing with the same issues. Therefore, feel free to use this list.

### **Contact details**

Research Centre for Injury Studies  
Flinders University of South Australia  
Mark Oliphant Building  
Laffer Drive  
Bedford Park  
SA 5047  
AUSTRALIA  
Tel: +61 8 8374 0970  
Fax: +61 8 8374 0702

**MALINDA STEENKAMP, RESEARCH CENTRE FOR INJURY STUDIES**  
**29/07/1999**

# Examples of coded cases

## Example 1:

<b>While riding a bicycle on the way to work, a man was hit by a car on the street and sustained a fracture to his lower leg. He was brought to the ED by an ambulance.</b>					
Coding date (ddmm)	0	1	0	7	
Case identification number	0	0	0	1	
<b>Data element</b>	<b>Code</b>				<b>Comments/Notes</b>
Intent	0 1				Unintentional
Direct mechanism of injury	A	1	.	1	Contact with moving object
Contributing mechanism of injury			.		Not specified
Direct object/ substance		E	3	9	Car: passenger car
Contributing object/ substance 1					Not specified
Contributing object/ substance 2					Not specified
Place of occurrence		0	6	1	Street: roadway
Activity when injured			0	1	On the way to work: travel to paid work -> paid work
Alcohol use				1	No information available
Other psychoactive drug use				1	No information available
<b>If Intent = interpersonal violence:</b>					
Relationship victim/perpetrator			.		Not applicable: Intent = 1
Context for assault		.			N/A
<b>If Intent = intentional self-harm:</b>					
Precipitating factors			.		N/A
<b>If Intent = legal intervention:</b>					
Type of legal intervention			.		N/A
<b>If Transport injury:</b>					
Mode of transport of patient			0	3	Riding a bicycle: pedal cycle
Counterpart			0	5	hit by a car: car, pickup truck or van
User				1	riding a bicycle: driver or rider
Context				2	Traffic
Coding time in minutes	0	5			
<b>General comment:</b>					

## Example 2:

<b>A woman, playing an official outdoor volleyball game, sprained her ankle when she hit the surface after she jumped. She went to the General Practitioner, who sent her to the ED.</b>					
Coding date	0	1	0	7	
Case identification number	0	0	0	2	
<b>Data element</b>	<b>Code</b>				<b>Comments/Notes</b>
Intent			0	1	Unintentional
Direct mechanism of injury	A	1	.	2	hit the surface: contacting static object
Contributing mechanism of injury	A	4	.	4	after she jumped: jumping from less than 1 metre
Direct object/ substance		L	2	9	hit the surface/ outdoor volleyball game: ground surface
Contributing object/ substance 1					not specified
Contributing object/ substance 2					not specified
Place of occurrence		0	5	1	outdoor volleyball game: sportsground outside
Activity when injured			0	4	official game: organised sports
Alcohol use				1	no information available
Other psychoactive drug use				1	no information available
<b>If Intent = interpersonal violence:</b>					
Relationship victim/perpetrator			.		N/A: Intent = 1
Context for assault		.			N/A
<b>If Intent = intentional self-harm:</b>					
Precipitating factors			.		N/A
<b>If Intent = legal intervention:</b>					
Type of legal intervention			.		N/A
<b>If Transport injury:</b>					
Mode of transport of patient					N/A: Mechanism is not E, F, G, H and Activity is not 1 or 3
Counterpart					N/A
User					N/A
Context					N/A
Coding time in minutes	0	3			
General comment:					

### Example 3:

<b>A woman was beaten by her ex-boyfriend using a baseball bat, outside her home on the street. The man was angry because she had left him. She was brought to the ED with a severe head injury by her neighbour. It the man had been drinking, but the woman had not used any alcohol.</b>					
Coding date	0	1	0	7	
Case identification number	0	0	0	3	
<b>Data element</b>	<b>Code</b>				<b>Comments/Notes</b>
Intent			2	2	Beaten: interpersonal assault
Direct mechanism of injury	A	1	.	1	Beaten using a baseball bat: contact moving object, includes hit or thrown ball/hockey stick
Contributing mechanism of injury			.		not specified
Direct object/ substance		I	2	9	Baseball bat: bat, racquet, hockey stick
Contributing object/ substance 1		K	7	1	the boyfriend was using the baseball: person
Contributing object/ substance 2					not specified
Place of occurrence		0	6	1	on the street: roadway
Activity when injured			1	1	Nothing in particular
Alcohol use				4	NO - the woman was the patient and she did not use alcohol
Other psychoactive drug use				1	no information available
<b>If Intent = interpersonal violence:</b>					
Relationship victim/perpetrator	0	1	.	5	ex boyfriend: ex-partner
Context for assault	1	.	0	9	Because she had left him: over desertion/terminating a relationship
<b>If Intent = intentional self-harm:</b>					
Precipitating factors			.		N/A
<b>If Intent = legal intervention:</b>					
Type of legal intervention			.		N/A
<b>If Transport injury:</b>					
Mode of transport of patient					N/A
Counterpart					N/A
User					N/A
Context					N/A
Coding time in minutes	0	7			
<b>General comment:</b> Remember - alcohol use refers to the patient and not to others involved in the injury event! Maybe it should?					

## 9. Some cases for practising coding

### Exercise 1

<b>A child of four years old fell of a chair at home when playing and hit the floor with her arm. She complained about pain in her wrist. Her mother brought her to the ED. (For solution see page 16)</b>					
Coding date					
Case identification number					
<b>Data element</b>	<b>Code</b>				<b>Comments/Notes</b>
Intent					
Direct mechanism of injury			.		
Contributing mechanism of injury			.		
Direct object/ substance					
Contributing object/ substance 1					
Contributing object/ substance 2					
Place of occurrence					
Activity when injured					
Alcohol use					
Other psychoactive drug use					
<b>If Intent = interpersonal violence:</b>					
Relationship victim/perpetrator			.		
Context for assault		.			
<b>If Intent = intentional self-harm:</b>					
Precipitating factors			.		
<b>If Intent = legal intervention:</b>					
Type of legal intervention			.		
<b>If Transport injury:</b>					
Mode of transport of patient					
Counterpart					
User					
Context					
Coding time in minutes					
<b>General comment:</b>					

## Exercise 2

<b>A metalworker got a metal splinter into his left eye when he was with a grinder at work. The next day his eye was very painful and he came to the ED. (For solution see page 16)</b>					
Coding date					
Case identification number					
<b>Data element</b>	<b>Code</b>				<b>Comments/Notes</b>
Intent					
Direct mechanism of injury			.		
Contributing mechanism of injury			.		
Direct object/ substance					
Contributing object/ substance 1					
Contributing object/ substance 2					
Place of occurrence					
Activity when injured					
Alcohol use					
Other psychoactive drug use					
<b>If Intent=interpersonal violence:</b>					
Relationship victim/perpetrator			.		
Context for assault			.		
<b>If Intent=intentional self-harm:</b>					
Precipitating factors			.		
<b>If Intent= legal intervention:</b>					
Type of legal intervention			.		
<b>If Transport injury:</b>					
Mode of transport of patient					
Counterpart					
User					
Context					
Coding time in minutes					
General comment:					



### Exercise 3

<b>In prison a prisoner sentenced to life imprisonment tried to commit suicide by burning himself with gasoline. Was brought to the ED by ambulance with severe burns on his whole body. (For solution see page 16)</b>					
Coding date					
Case identification number					
<b>Data element</b>	<b>Code</b>				<b>Comments/Notes</b>
Intent					
Direct mechanism of injury			.		
Contributing mechanism of injury			.		
Direct object/ substance					
Contributing object/ substance 1					
Contributing object/ substance 2					
Place of occurrence					
Activity when injured					
Alcohol use					
Other psychoactive drug use					
<b>If Intent = interpersonal violence:</b>					
Relationship victim/perpetrator			.		
Context for assault					
<b>If Intent = intentional self-harm:</b>					
Precipitating factors			.		
<b>If Intent = legal interventions</b>					
Type of legal intervention			.		
<b>If Transport injury:</b>					
Mode of transport of patient					
Counterpart					
User					
Context					
Coding time in minutes					
General comment:					

## Solutions case exercises

### Exercise 1: child

Intent: 0 1 (unintentional)

Direct mechanism of injury: A 1 . 2 (hit the floor: Contacting static object)

Contributing mechanism of injury: A 4 . 4 (fell of a chair: falling from a < 1 metre)

Direct object or substance producing injury: R 2 4 (hit the floor: floor)

Contributing object or substance producing injury 1: B 2 9 (chair: chair, stool)

Place of occurrence: 0 0 1 (home)

Activity when injured: 0 6 (while playing: leisure includes children playing)

Alcohol use: 1 (no information)

Other psychoactive drug use: 1 (no information)

### Exercise 2: metalworker

Intent: 01 (unintentional)

Direct mechanism of injury: U 1 . (splinter into his eye: foreign body entering into or through eye)

Contributing mechanism: None

Direct object or substance producing injury: S 3 9 (metal splinter: metal sheet, part, piece etc.)

Contributing object: J 3 2 (Grinder: Powered hand tool: grinder, buffer, polisher)

Place of occurrence: 0 8 9 (metal worker at work: unspecified industrial and construction area)

Activity when injured: 0 1 (at work: paid work)

### Exercise 3: prisoner

Intent: 3 1 (tried to commit suicide: attempted suicide)

Direct mechanism of injury: G 1 . 3 (burning himself with gasoline: contact with fire or flame)

Contributing mechanism: None

Direct object or substance producing injury: V 5 9 (Burning himself - Ignition or melting of other clothing/apparel)

Contributing mechanism: Q 1 1 (gasoline: petrol, other petroleum distillate)

Place of occurrence: 0 2 3 (prison)

Activity when injured: 1 8 (tried to commit suicide: other specified activity)

Alcohol use: 1 (no information)

Other psychoactive drug use: 1 (no information)

#### ***Suicide (attempt):***

Precipitating factors: 1 0 . (sentenced to life imprisonment: legal systems encounters)

## Appendix 5 : Index for object/substance

Object/substance (28 July 1999)	Code	Object/substance (28 July 1999)	Code
Adhesive nec	Q69	Blender	C19
Agricultural vehicle - other specified special	F18	Block - concrete	S19
Agricultural vehicle – unspecified special	F19	blood - drugs affecting blood constituents	P82
Air – hot	Z39	Blunt object – nec	Z65
Aircraft - fixed-wing – powered - private	H29	Board – wood	S29
Aircraft - fixed-wing powered - Commercial	H39	Boat	G99
Aircraft - powered – other specified	H48	Boat – Fishing	G29
Aircraft - powered – unspecified	H49	Boat – motor	G35
Aircraft - Ultralight powered	H19	Body of water – natural	Z27
Airgun	T17	Boiler	J81
Alcohol (drinks)	N08	bottle –glass	D23
Alcohols (not beverage)	Q09	Bovine	K46
Alligator	K65	Branch	K07
All-terrain vehicle	F49	Brick	S19
Alpine skis	I33	buffer - powered hand tool	J32
Anaesthetics - and therapeutic gasses	P59	Building	R79
Anaesthesiology device	U19	Building - other specified	R98
Analgesics - non-opioid	P19	Building - unspecified	R99
Animal - other specified	K98	Building component/fitting - other specified	R98
Animal - unspecified	K99	Building component/fitting - unspecified	R99
Animal - other specified venomous nec	K95	Building fitting - other specified	R98
Animal - unspecified venomous	K96	Building fitting - unspecified	R99
Animal being ridden	E05	Bull	K46
Animal-drawn vehicle	E07	Bunk bed	B03
Ant	K33	Bus	E49
Antibiotics	P71	Butane	Q23
Anti-epileptics and antiparkinsonism	P93	Cabinet	B19
Anti-infective and antiparasitics	P72	Canoe	G59
Antihistamine	P01	car	E39
anti-microbial substance nec	P79	Carbon monoxide	Q22
Antiparasitics	P72	carpet - loose	B59
antiparkinsonism and anti-epileptics	P93	carpet tack	J01
Antipyretics	P19	cardiovascular agents	P81
Antirheumatics	P19	cardiovascular device	U29
apparatus - other specified	J98	Cat	K43
apparatus - unspecified	J99	cattle	K46
apparel - Ignition or melting	V59	caustic bleach	Q46
appliance - other specified	C98	Caustic substances nec	Q49
appliance - unspecified	C99	Centipede	K37
arthropod - other specified	K38	chain saw	J33
arthropod - unspecified	K39	Chair	B29
arrow - bow and arrow, crossbow	I04,	chemical substance - other specified	Q98
	T32,	chemical substance unspecified	Q99
	T33	child care product	A09
Artificial body of water	Z25	child's product - other specified	A98
Aspirin	P11	child's product - unspecified	A99
aspirin compound	P11	chopping tool	J22
Auger	F13	cigarette	O81
Automobile	E39	circular saw	J34
autonomic nervous system drug	P49	cleaning compounds nec	Q59
Avalanche	M69	Cliff	L33
Baby pram	A01	climbing apparatus - playground	A42
Baby walker	A02	Clothes cleaning appliance	C49
bag - plastic	D51	clothes drying rack	D39
Ball	I01	clothes horse	D39
balloon - passenger	H59	Clothes iron	C39
Banister	R61	Clothesline	D39
Bat - sporting	I29	clothing - other specified	O28
Bathtub	R02	clothing - unspecified	O29
Bed	B01	clothing - Ignition or melting	V59
bed - bunk	B03	Club	T29
Bedding	B05	Coin	O57
Bee	K30	cold drink	N07
Bench	B49	cold food	N05
Beverage - alcoholic	N08	Commercial fixed-wing powered aircraft	H39
bin - rubbish	D59	concrete	S19
Bird	K29	concrete block	S19
Bleach	Q46	construction vehicle - special	F39

Object/substance (28 July 1999)	Code
container - other specified	D98
container - unspecified	D99
cooker	C09
Cooking appliance	C09
cooking fat - hot	N01
cooking oil - hot	N01
cooking pan	D11
Cooking pot	D11
Coral	K57
Cord	Z49
corrosive substances nec	Q49
Cot	A04
Couch	B39
Cow	K46
crane - power - operated	J54
Crocodile	K65
Crowd of people	K75
Cudgel	T29
Cutlery	D19
cutting tool	J23
cylinder - gas	J83
Dagger	T09
Dairy/milking plant	J72
Desk	B49
detergent nec	Q59
detergent - Dishwasher	Q43
digging tool	J25
disaster - natural - other specified	M98
disaster - natural - unspecified	M99
Dishwasher detergent	Q43
divan	B39
Dog	K41
Door	R21
door - glass	R22
drawing pin	J01
drink - other specified	N98
drink - unspecified	N99
Drinking glass	D21
drinks - hot	N04
drinks (alcoholic)	N08
drinks non-alcoholic	N07
drug - other specified	P98
drug - unspecified	P99
Drugs acting on autonomic nervous system	P49
drugs affecting blood constituents	P82
earth	S09
Earthquake	M49
Electrical fixture	R89
Electrical transmission lines	R81
Engine	J93
ENT device	U39
Environmental pollution nec	Z79
eruption, Volcanic	M59
escalator	R51
exhaust gas	Q21
Explosive material nec	Z59
fat - cooking - hot	N01
Fence	R41
fire - other specified	V98
fire - unspecified	V99
fire - Controlled - not in building or structure	V39
fire - Controlled in building or structure	V29
fire - Uncontrolled in building or structure	V09
fire - Uncontrolled fire - not in building or structure	V19
Firearm - other	T18
Firearm - unspecified	T19
Firework	Z51
Fish	K51
Fishing boat	G29
Fitting - building - other specified	R98
Fitting - building - unspecified	R99
Fixed plant/machinery - other or unspecified	J95
fixed-wing powered aircraft - Commercial	H39

Object/substance (28 July 1999)	Code
fixed-wing powered aircraft - private	H29
fixture - electrical	R89
flames - other specified	V98
flames - unspecified	V99
flammable material	V49
Flood	M29
Floor	R24
Flying fox	A41
food - other specified	N98
food - unspecified	N99
Food - cold	N05
Food - hot	N03
food poison - specified	Q88
food poison - unspecified	Q89
food poison - Ciguatera	Q81
food poison - eterodonic	Q83
food preparation utensil	D19
Food processing appliance	C19
Footwear	O21
Fork lift	F21
freezer	C29
Frozen gas	S59
furnishing - other specified	B98
furnishing - unspecified	B99
garden tool - other powered	J59
gases - anaesthetic and therapeutic	P59
gas - hot	Z39
Gas - cylinder	J83
Gases nec	Q29
Gas - liquid or frozen	S59
gas - motor vehicle exhaust	Q21
Gastric contents	Z67
gastrointestinal agents	P95
Gastroenterology device	U49
gate	R41
General hospital and personal use device	U93
General and plastic surgery device	U94
glass - molten	S49
Glass bottle	D23
Glass door	R22
glass - drinking	D21
Glass - sheet, piece, shard	S49
Glider	H79
Glue	Q69
goal post	I49
gravel	S09
grinder	J32
Grocery shopping trolley	D91
gun - hand	T11
hallucinogens and narcotics	P39
hammer	J21
Hand gun	T11
Hand tool - non-powered - hammer	J21
hand tool - non-powered - chopping	J22
Hand tool - non-powered - cutting	J23
Hand tool - non-powered - digging and tilling	J25
Hand tool - non-powered - lifting	J27
hand tool - non-powered - other specified	J28
hand tool - non-powered - unspecified	J29
Handrail	R61
Hang-glider	H69
Harvesting machine	F11
Heating appliance nec	C59
Heavy transport vehicle	E55
Helicopter	H09
High chair - infant, child, baby	A03
High pressure jet	Z61
hockey stick	I29
hoist	J54
Hornet	K32
hormones and their synthetic substitutes and antagonists	P94
Horse	K47
horse-float	E69

Object/substance (28 July 1999)	Code
hose - pressure	J85
Hot air	Z39
Hot cooking fat or oil	N01
Hot drinks	N04
hot food	N03
hot gas	Z39
Hot liquid	Z24
Hot tap water	Z21
Hot vapour	Z28
Hot water - other	Z23
Hovercraft	G36
Hypodermic - needle - syringe	U07
Ice	L23
Ice skates	I35
Ignition of highly flammable material	V49
Ignition or melting of nightwear	V51
Ignition or melting of other clothing or apparel	V59
industrial vehicle - other specified special	F28
industrial vehicle - unspecified special	F29
infant care product - other	A09
infant's product - other specified	A98
infant's product - unspecified	A99
Inflatable watercraft (non-powered)	G69
in-line skates	I31
iron - clothes	C39
iron salt - preparation containing	P83
javelin	I05, T34
Jellyfish	K56
jet - High pressure	Z61
Jet ski	G33
Jewellery	O49
kayak	G59
Kettle	C01
Knife (utensil)	D09
Knife (weapon)	T08
Ladder	J11
Lawn mower - not powered	J16
Lawn mower - powered	J51
Lift truck	F21
lifting hand tool - non-powered	J27
Light truck	E51
Lightning	M39
lineament	P91
liquid - hot nec	Z24
Liquid and frozen gas	S59
Lizard	K63
loose carpet	B59
lounge	B39
machete	T09
machine - other specified	J98
machine - unspecified	J99
machinery - fixed - other or unspecified	J95
mammal - other specified	K48
mammal - unspecified	K49
marine animal - other specified	K58
marine animal - unspecified	K59
mat	B59
Material - explosive nec	Z59
Material - other specified	S98
Material - unspecified	S99
Mechanical power transmission device	J91
Medical equipment	U09
Medical instrument	U09
Medical procedure nec - other	U98
Medical device - other specified or unspecified	U99\
medication - other specified	P98
medication - unspecified	P99
medicine - topical	P91
melting of clothing or apparel	V59
Merchant ship	G09
metal - Molten	S32
Metal - sheet, part, piece, etc, nec	S39
milking plant	J72
millipede	K37

Object/substance (28 July 1999)	Code
mineral and uric acid metabolism agents nec	P96
mobile machinery - other specified agricultural	F18
mobile machinery - unspecified agricultural	F19
Molten glass	S49
Molten metal	S32
Monkey bar	A42
Moth repellent	Q31
motor	J93
Motor vehicle - not further specified	E97
Motor vehicle exhaust gas	Q21
Motorboat	G35
Motorcycle	E21
movable steps	J11
mower - powered	J51
muscle and respiratory agents	P97
Nail	J01
nail gun	J31
Narcotics and hallucinogens	P39
natural body of water	Z27
natural - disasters - other specified	M98
natural - disasters - unspecified	M99
needle - sewing	J02
needle - hypodermic	U07
Neurological device	U59
Nightclothes	O25
nightie	O25
nightwear - ignition or melting	V51
non-alcoholic drinks	N07
Non-opioid analgesics	P19
non-powered aircraft - other specified	H98
non-powered aircraft - unspecified	H99
non-powered hand tool - other specified	J28
non-powered hand tool - unspecified	J29
Object/structure on or near playing area	I49
Obstetric and gynaecological device	U69
off-road vehicle	F49
oil - cooking - hot	N01
Ointment	P91
Opiates	P33
Ophthalmic device	U79
Organic solvents	Q19
Orthopaedic device	U89
Paint	Q71
paint stripper	Q71
paint thinner	Q71
pyjamas	O25
pan - cooking	D11
Paracetamol	P12
paracetamol compound	P12
Passenger balloon - non-powered	H59
Passenger car	E39
Passenger ship	G19
part - aircraft (powered or unpowered)	H89
part - metal	S39
Pedal cycle	E19
Pedestrian	E01
Pen	O67
pencil	O67
people - crowd	K75
person - other specified	K98
person - unspecified	K99
Person - other person	K71
person - self	K72
personal use item - other specified	O98
personal use item - unspecified	O99
Pesticide	Q39
Petrol	Q11
petroleum distillate	Q11
Physical medicine device	U92
piece - glass	S49
piece - metal	S39
Pin - sewing	J02
pipe - pressure	J85
pistol	T11

Object/substance (28 July 1999)	Code	Object/substance (28 July 1999)	Code
plant - other specified animal, plant or person	K98	Shearing plant	J71
plant - unspecified animal, plant or person	K99	Sheep	K45
plant - other specified nec	K18	Sheet - glass	S49
plant - other unspecified	K19	Sheet - metal	S39
plant - venomous	K17	shelf	B19
plant - Fixed (tool, machine, apparatus)	J95	ship - Merchant	G09
Plant thorns	K13	ship - Passenger	G19
Plastic bag	D51	shopping trolley	D91
playground climbing apparatus	A42	Shotgun	T15
playground equipment - other	A49	Shower	R04
playhouse	A21	skateboards	I31
polisher - powered hand tool	J32	Skis	I33
pool - swimming	R13	skis - water	G79
pot - cooking	D11	Slasher	F15
power lines	R81	Slide	A43
powered lawn mower	J51	sliding board	A43
Power tool - unspecified or other	J69	slope - ground surface	L43
power transmission device - Mechanical	J91	smoke - other specified	V98
powered aircraft - other specified	H48	smoke - unspecified	V99
powered aircraft - unspecified	H49	Snake	K61
Powered hand tool - nail gun - stud driver	J31	snow	L23
Powered hand tool - grinder - buffer - polisher	J32	snow skis	I33
powered hand tool - other specified	J38	Soap nec	Q59
powered hand tool - unspecified	J39	Sofa	B39
Powered hand -tool - chainsaw	J33	soil	S09
Powered hand -tool - circular saw	J34	solvents - organic	Q19
powered watercraft - other specified	G38	Spacecraft	H45
powered watercraft - unspecified	G39	spear	I03, T31
Preparation containing iron salt	P83	speed boat	G35
press - clothes	C39	Spider	K34
Press - tool, machine, apparatus	J77	splinter	S29
pressure	Z61	sporting equipment - other specified	I98
pressurised device - other	J87	sporting equipment - unspecified	I99
product intended for infant, child care, other	A09	sporting projectile (not ball)	I09
Propane	Q23	Stairs	R55
psychotropic	P29	Steam	Z28
purpose vehicles mobile machinery - other	F98	steps	R55
specified special		stone	S09
purpose vehicles mobile machinery -	F99	stool	B29
unspecified special		Storm	M19
puck	I02	stove - cooking	C09
pusher - baby	A01	Streetcar	E79
rack	B19	string	Z49
racquet	I29	structure fixture	R98
radiator	C59	structure fixture	R99
Radiological device	U91	stud driver	J31
railing	R61	Surface	L29
Railway vehicle	E89	Surface - other specified	L98
Ramp - escalator	R51	Surface - unspecified	L99
ramp - slope	L43	Surgical instrument	U09
Rat	K44	Surgical equipment	U09
Refrigerator	C29	Surgical operation or procedure nec - other	U97
refuse bin	D59	Swimming pool	R13
reptile - other specified	K68	Swing	A44
reptile - unspecified	K69	swing set	A44
respiratory agents	P97	Sword	T09
Rifle	T13	syringe - hypodermic	Z02
Rock	S09	systemic agents	P92
Roller skates	I31	Table	B49
room divider	B19	tap water - hot	Z21
Rope	Z49	Tent	Z19
rubbish basket	D59	therapeutic gases - anaesthetics and	P59
Rug	B59	Thinners - paint	Q71
Sailboat	G49	thorns - plant	K13
Scaffolding	J13	Three-wheeled motor vehicle	E25
Scissors	J05	Tick	K36
Scorpion	K35	tilling tool	J25
screw	J01	Timber	S29
Sea snake	K53	tinned container	D63
Sedative	P29	Toilet	R01
seesaw	A45	tool - other specified	J98
Sewing machine	C61	tool - unspecified	J99
shard - glass	S49	topical medicine	P81
Sharp object - nec	Z63	toy - other	A29

Object/substance (28 July 1999)	Code
Tractor	F09
trailer	E69
tram	E79
tramcar	E79
trampoline	I45
tranquilliser	P29
transmission device - Mechanical power	J91
Transmission lines - electrical	R81
transport - other specified	E98
transport - unspecified	E99
Tree	K09
Tree house	A21
Tricycle (child's) ride-on toy	A22
trolley - shopping	D91
truck - heavy	E55
truck - light	E51
tobacco	O81
tobacco products	O81
tyre - pressurised	J85
Ultralight powered aircraft	H19
un-powered aircraft	H98
un-powered aircraft	H99
un-powered watercraft	G88
un-powered watercraft	G89
uric acid metabolism agents	P97
Unspecified	L99
Unspecified	M99
utensil - other specified	D98
utensil - unspecified	D99
vaccines	P69
vapour - hot	Z28
vapours nec	Q29
vehicle - Animal-drawn	E07
vehicle accessory	J89
Vehicle exhaust gas	Q21
vehicle fitting	J89
Vehicle part	J89
vehicle - other specified special purpose	F98
vehicle - unspecified special purpose	F99
Volcanic eruption	M59
washing machine	C49
Wasp	K31
Waste container	D59
Water	Z29
water balance, mineral and uric acid metabolism agents	P96
water - hot tap	Z21
water - other hot	Z23
water - natural body of	Z27
Water skis	G79
Watercraft - unspecified	G99
Watercraft - inflatable (non-powered)	G69
Watercraft - powered - other specified	G38
Watercraft - powered - unspecified	G39
Watercraft - non-powered - other specified	G88
Watercraft - non-powered - unspecified	G89
Weapon - other specified	T98
Weapon - unspecified	T99
Weather - other specified	M98
Weather - unspecified	M99
Welding equipment	J61
Wheelchair	O71
Window	R23
Wood: timber, board, splinter, etc	S29
Yacht	G49
Other specified factor	Z98
Unspecified factor	Z99

## Appendix 6 : Calculation of per cent agreement without consideration of chance

ICECI Reliability and Validation Project: Results from the case scenario testing - Intent (First level codes)																																				
CS	GS	R1	R2	R3a	R3b	R4	R5	R6	R7	R8	R9	R10	R11a	R11b	R16	R19a	R19b	R20	R22	R24	R25	R26	R25b	R30	R31	R32	R33a	R33b	R34	R35	R36	R38	R39	Agr	Tot	%
1	1	1	1	1	MISS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31	31	100
2	1	1	1	1	MISS	1	1	1	1	1	.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31	31	100
3	1	1	1	1	MISS	1	1	1	1	1	.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31	31	100
4	NI	NI	NI	NI	MISS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	31	31	100
5	6	1	1	NI	MISS	1	1	1	1	NI	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	2	31	6
6	1	1	1	1	MISS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31	31	100
7	NI	NI	1	NI	MISS	NI	NI	1	1	NI	NI	6	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	1	NI	NI	NI	NI	28	31	84
8	2	2	2	2	MISS	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30	31	97
9	1	1	1	NI	MISS	1	1	1	1	NI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29	31	94
10	3	3	3	3	MISS	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	30	31	97
100	2	2	2	MISS	2	2	2	2	MISS	2	2	2	7	2	2	2	2	MISS	MISS	2	MISS	2	2	2	2	2	2	2	2	MISS	7	MISS	MISS	22	24	92
●	100	100	100	75	25	100	100	100	30	100	100	100	100	100	100	100	100	50	72	100	50	100	100	100	100	100	100	100	100	50	100	36	47	428	2737	84

CS = Case scenario

GS = Gold Standard

Agr = Number of codes who agree with gold standard

% = Per cent agreement with gold standard, ie  $Agr \div Total \times 100 = \%$

NI = Not Injury, ie the scenario does not meet the definition of an injury.

MISS = System missing, ie coder did not code this scenario (some coders only coded 25 or 50 scenarios)

. = Code not provided by coder, but coder should have because it was not part of the system missing scenarios.



# ICECI Reliability and Validation Project: Results from the case scenario testing - Intent (Full codes)

CS	GS	R1	R2	R3a	R3b	R4	R5	R6	R7	R8	R9	R10	R11a	R11b	R16	R19a	R19b	R20	R22	R24	R25	R26	R25b	R30	R31	R32	R33a	R33b	R34	R35	R36	R38	R39	Agr	Tot	%	
1	1	1	1	1	MISS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	31	100	
2	1	1	1	1	MISS	1	1	1	1	1	.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	31	100	
3	1	1	1	1	MISS	1	1	1	1	1	.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	31	100	
4	NI	NI	NI	NI	MISS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	0	31	100	
5	6	1	1	NI	MISS	1	1	1	1	NI	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	29	31	6
6	1	1	1	1	MISS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	31	100	
7	NI	NI	1	NI	MISS	NI	NI	1	1	NI	NI	6	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	1	NI	NI	NI	NI	5	31	84	
8	22	22	22	2	MISS	22	22	22	2	2	22	22	2	2	22	22	22	22	4	22	22	22	22	22	22	22	22	22	22	22	22	22	22	6	31	81	
9	1	1	1	NI	MISS	1	1	1	1	NI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	31	94
10	39	32	31	3	MISS	31	31	3	3	3	31	32	31	31	39	39	31	31	38	32	31	39	33	31	31	31	32	32	31	31	31	39	31	27	31	13	
##	22	22	22	MISS	2	22	22	22	MISS	22	22	22	7	22	22	22	22	MISS	MISS	22	MISS	22	22	22	22	22	22	22	MISS	7	MISS	MISS	3	24	88		
TOT	100	100	100	75	25	100	100	100	30	100	100	100	100	100	100	100	100	50	72	100	50	100	100	100	100	100	100	100	100	50	100	36	47	578	###	79	

CS = Case scenario

GS = Gold Standard

Agr = Number of codes who agree with gold standard

% = Per cent agreement with gold standard, ie  $Agr \div Total \times 100 = \%$

NI = Not Injury, ie the scenario does not meet the definition of an injury.

MISS = System missing, ie coder did not code this scenario (some coders only coded 25 or 50 scenarios)

. = Code not provided by coder, but coder should have because it was not part of the system missing scenario

## Appendix 7 : Example of analysis of comments

### Scenario 1

A housewife accidentally fell off a pool ladder when the family dog jumped at her while she was climbing out of the pool after playing with her children. She struck her head on the metal of the steps and lacerated her scalp.					
Data element	Code			Comments/Notes/Suggestions (% Agreement)	
Intent		0	1	Unintentional (100%)	
Direct Mechanism of injury	A	1	.	2	Contacting static object (87.1%) A4.4 Falling/jumping/pushed from a height: less than 1 meter C1.0 Cutting, tearing – valid
Contributing Mechanism of injury	A	1	.	6	Contacting animal: other (100% gave CM code) (6% agreement with GS) A4.4 Falling/jumping/pushed from a height: less than 1 meter – valid A4.5 Falling/jumping/pushed from a height: more than 1 meter – may be valid A1.2 Contacting static object – not valid A1.1 Contacting moving object – not valid A4.8 Other specified falling/stumbling – valid A4.9 Unspecified falling – not valid
Direct Object/ substance		R	1	3	Swimming pool – (Unless elsewhere specified and classified, objects and places include their attachments.) (84%) J11 Ladder movable steps – may be valid R55 Stairs, steps – may be valid I49 Object/structure on or near playing area – not valid L29 Surface – may be valid R98 Other specified building, building component, fitting – may be valid S39 Metal: sheet, part, piece, etc nec – may be valid
Contributing Object/ substance 1		K	4	1	Dog (90% agreed that there should be a code.) (46% agreed with the GS) R55 Stairs, steps – may be valid J11 Ladder, movable steps – may be valid R13 Swimming pool – valid R61 Handrail, banister, railing – may be valid S39 Metal: sheet, part, piece, etc nec – may be valid
Contributing Object/ substance 2					None specified (48% agreed that there should not be a code) K41 – most common CO2 K41 – Dog – valid R55 Stairs, steps – valid R13 Swimming pool – valid
Place of occurrence		0	0	1	Home, this includes swimming pool in/around home

				(58%) 109 - Unspecified recreational/cultural area/public building – may be valid 18 Other specified – not valid 19 Unspecified – valid 118 Other specified commercial area – may be valid
Activity when injured		0	6	Leisure (97%) 5 Unorganised sport – may be valid
Alcohol use			1	No information (97%) 4 No
Other psychoactive drug use			1	No information (97%) 4 No
<b>Violence case (Intent = interpersonal):</b>				
Relationship victim/perpetrator			.	N/A
Context for assault		.		N/A
<b>Suicide (attempt) (Intent = intentional self-harm):</b>				
Precipitating factors			.	N/A
<b>Intent = legal intervention:</b>				
Type of legal intervention			.	N/A
<b>Transport:</b>				
Mode of transport of patient				N/A
Counterpart				N/A
User				N/A
Context				N/A
Coding time in minutes			1	0
<p><b>General comment:</b> Excuse me please for my average english, that explains the long coding time. I have to consult the dictionary quite often. Where is the part of building module? Don't like the idea of calling this woman a housewife. Is the dog in the pool? Otherwise how did this woman hit her head on the ladder steps unless the dog jumped from behind. Unbelievable story. We should be suspicious of this injury and ask further questions.</p> <p><b>Mechanism:</b> Information about the height of fall is not available Didn't know how to code the dog jumping up; did she make contact with the dog? There is a second contributing mechanism = A1.6 Direct cause of injury = fall, cause of event = dog Difficult to code contributing mechanism</p> <p><b>Object:</b> For assignment of the direct code, which part do you code? I think it is open to interpretation. Unclear if dog is a contributing object/factor; should the dog be mentioned? Could wet hands from water in pool have contributed Coding the object was difficult: R98, R13, I49, R55?</p> <p><b>Place:</b> It is generally easy to know the place of occurrence at home. I think it is an important data. So I think relevant the module of 'part of building'; Assumed that swimming pool was in the surroundings of a home, it could have been a public swimming centre; place of occurrence could be public or private; presence of family dog suggests a home pool Further breakdown of home - not clearly defined how to use</p> <p><b>Activity:</b> Swimming as leisure / organised sports / unorganised sports</p>				

## Appendix 8: Contact details

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## Appendix 9 : Comments on the testing process

These comments were taken directly from the questionnaires completed by the testers.

**Table 9.1 : Comments on the testing process**

Comments
The coding took longer than I had anticipated – probably because I am not a coder.
I must openly admit that I found the coding time-consuming and that I was still going fairly slow, even over the last 20 cases.
I found the scenarios quite time consuming and I underestimated how long it would take to complete. Therefore, I did not complete them in the time provided.
The guide was very easy to use and comprehensive.
The data dictionary containing the main variables of the classification was prepared with separate tabs for each section as per the trial instructions, and this proved to be extremely useful.
There were no guidelines given on the representational layout of the codes. For instance, a code represented as 1.2 in the data dictionary is listed on the coding examples as either 01.2 or 1.2, depending on where the dots are located and how many spaces there are. There was no indication as to whether the codes should be right or left justified or whether leading or trailing zeros are required.
The practice exercises were attempted and one was found to be incorrect.
The examples given were a useful source of reference.
The general instructions on selection of cases were informative and easily understood.
Excuse me please for my average English, which explains the long coding time. I had to consult the dictionary quite often.
I found this very interesting but quite difficult. It is a meaningful experience that helped me to better understand our own troubles with data validity (i.e. in Geneva Hosp ER). In ER, an injury data system (with a questionnaire based on EHLASS one) was implemented between June 95 and June 96. I began to work with their data after June 96. Since this time, any injury data has been collected in ER, and my actual mission is to organise data collection. It is really a hard task, because there are no habits and quite no willingness of clinicians to do that (too much work)
I enjoyed coding the case scenarios. It was a good exercise
It was sometimes difficult to choose the correct mechanism code, particularly for MVAs.
A major problem with coding is the level of detail you have in your information. The scenarios have more detail than we get in the health service in Norway. The testing should also be done to less detailed scenarios, because then you will better understand how the classification should be designed.
More improvement and sensitisation should be done with ICECI before distribution to member countries. ICD-10 is more systematic and better classified - not so much overlapping or confusing. ICECI is trying too much to get everything coded. This is one of the cause of confusion and contradiction between classification. The guide for use of 'Place' suggested that the place where injury started was to be selected first. When matched with guide for use of mechanism of injury and object - these give priority to the direct (?last) mechanism of injury. There can be mismatching esp when only one code for each type of data element allowed for.
I think one very NB document is missing from this package and this is a quick reference guide. Once I became more familiar with the data dictionary I only needed a quick reminder of what codes were what. A one-page double sided thick paper quick reference would be very handy for those who have had practice/experience with the instrument, but might want to make sure they remember the codes correctly but not with all the detail needed in the data dictionary.
More detailed dictionary would have been more helpful. Dictionary needs work - not enough of a resource to be effective.
Need better clarification. Few blunt and penetrating force, e.g. Bullet as a blunt force
The index could be improved to include mechanisms of injury as well as an improved version of the object index. Found the mapping to ICD 10 very helpful and would appreciate further mapping with objects producing injury so to be able to code more efficiently. Information was lost if place of occurrence was in somebody else's home (as in course of burglary) and was classified to other specified. Other specific comments have been included with the scenarios.
Why isn't the site of an injury coded? For place of occurrence 'home' is was not clear if this had to be the victim's home. What is the difference between a burglary and a robbery? There are some scenarios where a victim is injured by a mode of transport, but they are not really pedestrians e.g. The man who had his arm crushed in the door of the car. What is the difference between a 'bystander to the vehicle' and a 'person on the outside of a vehicle'? Maybe in the 'intention' field there could be a category for 'acts of God' for injuries arising from natural disasters. In the 'activity when injured field' there should be a 'criminal activity' option as a robbery is not really 'paid work' and by putting it to

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**Comments**

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'other' you could lose information.

Just wondered who on earth would want to complete this level of coding. I imagine for this level it could only be done by a funded position. It could not possibly be done in real time by Emergency staff.

Each of the separate injury areas needs to look at the coding to see how improvements could be made. Adding additional items may or may not place extra strain on coders but this should also be examined.

The figure/table of instructions for coding violence module was not available. Some injury category (e.g. activity code) for intentional/interpersonal injuries served redundant.

I find the mechanism of injury classification difficult to apply, particularly with motor vehicle accidents. My other concern about the classification is that when testing it you are also testing the education guides to use it and it is hard to differentiate between classification issues and education issues.

Very complex and time consuming. Who would have to do this coding in the 'real world'? Would not work in Ers in South Africa.

I think it is very valuable to have more precise methods for injury surveillance and coding. The ICECI is a commendable step forward. My only concern is in the application of the coding in an Emergency Department setting. It will either have to be labour intensive with data coders/abstracters/entry clerks or the data will suffer from incompleteness. Busy emergency physicians will not take the time to code.

I had some difficulties in coding the relevant modules to the field of place. Especially in the code for home, I used the relevant modules for the part of building, but code 19 for home is the same with 19 unspecified place. I did not use the relevant modules for the type of home, type of school and transport area. You should have boxes for these codes also. Some times there was not enough space to write the meaning of the code we used and the meaning of the current code. It was impossible to write the relevant modules too.

The Data Dictionary could be more analysed, in explaining the things that a code include. We would like to ask you to send us the correct coding of the scenarios when you finally correct all of them. It is very time consuming to write the meaning of each code in every field of the scenario. We could write only the code.

Some of the case scenarios could be more clarified concerning the intent or the mechanism of the injury, provided of course that further information was available.

The data dictionary - it would be a convenience to mention more examples, inclusions and exclusions at each field. I did not know where to put the relevant module in intent - there should also be a box for this in the scenarios. We had sent you e-mail asking you about this, but when we received the answer, it was too late. We had already finished the coding/

Injuries which may occur on the road or in a car but are in no way related should not fill the traffic module, I think. I missed such an instruction. Self harm with undetermined is possible.

Can you assume or code alcohol/drug use not applicable in small children?

I would like to see more specific coding for sports injuries. I am developing our own coding scheme for US sports data and would love to help with this aspect of the project if you are interested.

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**Table 9.2 : Comments on the test set**

Comments
Some scenarios not enough detail
To much violence and suicide. Too few occupational, traffic.
Provide more info than real life situation in Thailand
Good practice, maybe a few more examples would have been worthwhile. I could have used a little more practice to build my confidence that I was coding correctly.
100 is a lot! (1) Perhaps 100 is too many to use as a test (1) I think there were too many cases. (1)
A better variety of scenarios would be good, found many to be contact with static of moving object.
Interesting
Several of the case scenarios were very complicated but didn't give sufficient information. Was this to mirror how coding would be done from medical records? Probably a true picture if from triage sheets, but total medical record would normally give more information.
Very good (4 respondents)
Some Americanisms/ concepts not clear
Varied, realistic in terms of documentation (i.e. not much detail).
There were many scenarios that are unlikely to happen.
It contained many scenarios that are rare or impossible to happen. It could contain more frequently happened scenarios. Also, the description of the injury in many scenarios was not clear enough.
Many of the scenarios suffered from lack of detail. For example, many of them did not define where the person was hit (in the cement floor, in a ditch, etc.)
Test set was satisfactory covering wide range of accidents.
A large number I found difficult to code, but this was appropriate for the test set.
Useful

**Table 9.3 : Comments about the index provided**

Comments
Not easy to use.
OK (2 respondents). Good (1) Very good. (1)
Very good idea, not everything was listed on the index, so with some work this would be very valuable and decrease coding time.
Helpful, time saving (2 respondents)
Did not use. Found it easier to flick through dictionary.
OK but not exhaustive. (1) Needs more cross referencing (1)
Helpful, but I found a personal list I made of the category headings a helpful adjustment.
Very cumbersome, not fully cross referenced e.g. Cocaine not listed in alphabetical listing which meant wading through object codes.
Incomplete. (1) Not comprehensive enough. (1) The index for object/substance could be more detailed. (1)
I did not use it. (2 Respondents)
I was usually searching an object with a name and I did not find it, because it was written with a synonym.
It was difficult to find an object in this list because an object has many names and I did not know how to search.
Not completely comprehensive, but a definite help.
The drug list in index is a bit of a horror.
Slightly confusing with all of the different levels
There is not a classification about cement in the object index.

