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1 Introduction

NHS Digital are the UK WHO-FIC Collaborating Centre and ICD-11 Field Trial Centre. We are participating in the World Health Organisation (WHO) Field Trial activities and have completed two rounds of field trials. The first round was conducted between 4 April 2017 and 30 June 2017, the second round was conducted between 27 February 2018 and 13 April 2018.

WHO started the process of developing ICD-11 in 2007. The development process has involved the use of the ICD-11 Browser\(^1\) to gather comments and suggestions for change (through field trials and stakeholder feedback) in order to make changes to the content of the Classification in real time. During the development period the content in the Browser has continually changed as corrections and improvements have been made by WHO, however each round of field trials were conducted using a ‘frozen version’\(^2\) of the classification.

On 18 June 2018 WHO launched the ICD-11 release which is described as an advance preview that will allow countries to plan how to use the new version, prepare translations, and train health professionals all over the country.

ICD-11 will be presented at the World Health Assembly in May 2019 for adoption by Member States and reporting from 1 January 2022.

The new ICD also includes new chapters, one on traditional medicine: although millions of people use traditional medicine worldwide, it has never been classified in this system. Another new chapter on sexual health brings together conditions that were previously categorized in other ways (e.g. gender incongruence was listed under mental health conditions) or described differently. Gaming disorder has been added to the section on addictive disorders.


1.1 WHO response to field trials

Whilst some issues affecting individual chapters, categories and codes identified during the first round of the field trials still existed in the frozen version used in the second round, the majority of these issues were rectified. We will be looking to see if the remaining issues have been corrected in the 18 June 2018 advance preview.

There were some high level issues that affect principles and large parts of the classification that were identified during the trials. Steps were taken by WHO to rectify these issues after the first round of trials and we could see evidence of this when undertaking the second round. This report contains:

- The high level issues identified during the first round of the trials

\(^1\) The ICD-11 Browser has evolved into the ICD-11 Maintenance Platform since the latest release of ICD-11

\(^2\) A version of the classification that is static and the content does not change during the trial period
Details of how these issues have been rectified or improved in the second round and whether they are still present

For more information on the objectives of the ICD-11 Revision, the revision process, benefits of ICD-11, the ICD-11 Browser and Coding Tool, the structure of ICD-11 and the purpose and structure of the field trials see the ICD-11 Overview.

2 Field Trial Methodology and Components

2.1 First Round

The first round was conducted between 4 April 2017 and 30 June 2017.

2.1.1 Training

An ICD-11 Field Trials Collaboration area was set up on Delen (NHS Digital’s specialist collaboration and information sharing platform for our national terminology and classifications standards) containing the field trial instructions and ICD-11 Familiarisation and training.

The familiarisation and training that all participants had to undertake was produced by NHS Digital and consisted of an overview of ICD-11 (which is accessible to all here), overviews of the ICD-11 Coding Tool and Browser, ICD-FiT platform and Components A and B of the trials in the format of both WebEx recordings and PDF reference documents. A guide to case coding was also provided for use when undertaking Component B. Participants were also provided with additional information in the form of a draft reference guide, the ICD-11 web pages, revision information notes and FAQs.

Participants registered to the ICD-FiT demo version and were assigned test cases to familiarise themselves with the platform and the Coding Tool and Browser. Participants then registered on the live platform and completed the field trial live cases.

2.1.2 Components

The first round of trials consisted of two components which were both completed in the ICD-FiT platform. The platform allows for the assignment of the trial components to registered users. Participants have unique login details and can access the platform at any time to complete the cases assigned to them. The platform allows NHS Digital to monitor the progress of the trials centrally and provides extracts containing the data entered by the participants.

2.1.2.1 Component A: Line Coding

For Component A participants were provided with 298 diagnostic statements covering conditions classified throughout the classification. Participants provided the appropriate ICD-10 and ICD-11 code(s) for the concept(s) described and answered pre-defined questions for each case.

Case examples include:

- Right breast angiolipoma
- Anaphylactic allergic asthma attack due to exposure to dog dander
- Hyperosmolar hyperglycaemic nonketotic coma, type 2 diabetes mellitus
• Haemorrhagic cerebral infarction

The pre-defined questions were:

• Did you experience any difficulty in assigning a code(s) to this case?
• Is the level of specificity of the assigned code(s) appropriate?
• Did you experience any ambiguity in making the code(s) assignment?

Participants were able to provide further detail if the answer to any of the questions was 'yes'.

2.1.2.2 Component B: Case Coding

For Component B participants were provided with 30 case scenarios. Based on the scenario, the stated main condition and other conditions, participants indicated if they agreed that the main condition was correct based on the World Health Organisation’s definition of a main condition, provided the ICD-11 codes for the main condition and other conditions, and answered pre-defined questions for each case.

The WHO definition of main condition is the condition that is determined to be the ‘reason for admission or encounter, established at the end of the episode of health care’. The definition and additional morbidity coding rules for the reselection of the main condition were provided in the ‘Guide to Case Coding’ document.

Case example:

A patient is admitted for an elective hip replacement for osteoarthritis (coxarthrosis) of the right hip but develops acute chest pain prior to surgery. A cardiologist is called to see the patient, and STEMI is documented. The patient is transferred to the cardiac care unit on thrombolytic therapy. The elective surgery is cancelled, and the patient remains in hospital for treatment of MI. The final diagnosis is recorded as acute anterior wall MI.

Main condition: STEMI anterior wall
Other conditions: Procedure not carried out due to contraindication
Osteoarthritis of right hip

The pre-defined questions were:

• Is the Stated condition the ‘reason for encounter or admission after study at the end of the episode’?

• Did you experience any difficulty in applying Morbidity Rules for this case?

If the answer to question 1 was ‘no’ the participant was asked to state what the main condition was and indicate which morbidity rule, from the ‘Guide to Case Coding’, they used to reselect the main condition.

Participants were able to provide further detail if the answer to question 2 was ‘yes’.
2.2 Second Round

The second round was conducted between 27 February 2018 and 13 April 2018.

The purpose of the second round of the trials was to re-test a sub set of the concepts that caused the most difficulty during the first round in order to identify if these problem areas had been improved.

The second round followed the same format as Component A: Line Coding of the first round, but consisted of 80 of the concepts. Chapters 21 Symptoms, signs or clinical findings, not elsewhere classified, 22 Injury, poisoning or certain other consequences of external causes and 23 External causes of morbidity or mortality were not included because WHO were still improving content, indexing and tooling for these chapters.

Code assignments were only made in ICD-11.

Similar to the first round, an area was set up on Delen which contained the field trial instructions and information on how participants could refresh themselves on how to undertake the field trial, a document was also included which described improvements that had been made to the Coding Tool, See 4.3.2 Difficulties using the Coding Tool – Second Round for details of the improvements made.

3 Participation

3.1 First Round

The service were asked to volunteer to participate in the field trial. We received confirmation of participation from 94 people. Participants were from England, Wales, Scotland and Northern Ireland, the majority of which were coding professionals (Clinical coders, Clinical Coding Trainers and Auditors, Clinical Coding Managers). All Terminology and Classifications Delivery Service staff with classifications expertise also took part.

It is understandable, due to the quantity of line coding cases, the time of year the trial was done and because of other work pressures, that not all participants could complete all cases in both components and some volunteers were unable to complete any of the cases at all. An additional factor was the delay to the start of the trial which did not begin when originally communicated to volunteers. This was due to the delays in WHO providing NHS Digital with the field trial cases and in the lack of guidance and information provided by WHO which meant that NHS Digital had to produce training materials for the trial.

A total of 24 volunteers completed all 298 Line coding cases and 44 volunteers completed all 30 case coding cases. A total of 22 participants completed both all line coding and case coding cases.

This resulted in a large amount of data to allow us to identify high level issues affecting the whole of the classification and specific issues at code level.

The table below contains the figures for participation in the first round of the trials.

| Number of participants who undertook Component A: Line Coding | 59 |
Participants commented that the field trial process was slow, particularly Component A, and many were unable to commit any more time to the trials so were unable to complete all cases. It was felt that the sample size of 298 for component A was too large to complete within the given timeframes. The 30 cases in Component B were much more manageable but it was felt that there were not enough cases or Casemix variation to fully test functionality, and this was therefore deemed not comprehensive enough.

### 3.2 Second Round

The participants who completed all cases for both Components of the first round were invited to take part in the second round. We additionally asked colleagues from national centres in Wales, Northern Ireland and Scotland to take part. All Terminology and Classifications Delivery Service staff with classifications expertise also took part.

The table below contains the figures for participation in the second round of the trials.

| Number of participants who undertook the second round | 29 |
| Number of participants who completed the second round | 26 |
| Total number of cases completed for the second round | 2224 |

### 4 Findings

The ICD-FiT platform collates all the data entered by participants and produces extracts as Microsoft Excel spreadsheets.

In order to identify both the high level issues that effect large parts of the classification and the issues and discrepancies at individual Chapters, categories and codes for each case we reviewed:

- the variation in code assignment made by participants to understand why participants might have assigned different codes
• the answers and rationales to the pre-defined questions to understand why there is variation in code assignment and what the issues encountered by participants were
• the responses to the first round survey
• any other feedback provided to us by participants.

The issues identified during the first round were collated and feedback was provided to WHO. During the second round we looked to see if and how the issues had been corrected. It was clear to see that a lot of progress had been made by WHO in improving the classification and the majority of the issues and discrepancies at individual chapters, categories and codes had been corrected.

The high level issues are detailed below. Examples using specific conditions have been included to illustrate and give context to the high level issue identified. Where examples are given the ICD-11 description, excluding the code, has been provided. Where the issue at the specific example has been corrected in the second round the correction is stated as a footnote.

4.1 Deficiencies in the wording of the cases

In both rounds several comments indicated that the diagnostic terms given in the cases were ambiguous and the terminology used was not reflective of usual terminology seen in clinical documentation which led to many terms being difficult to locate in the Coding Tool.

Future trials should use diagnoses and cases that are more reflective of terminology that would be seen in medical records in the UK.

4.2 More detailed training on the use of the classification was needed

4.2.1 First Round

A high proportion (90%) of respondents to the first round survey said the content of the instructions, familiarisation and training were clear and helpful, with 93% stating the formats used for the training were helpful and that they received all the information they needed to undertake the field trials. However, feedback indicated that:

• There was a lack of guidance about coding principles and chapter specific guidance such as when it would have been justifiable to use post-operative complication codes.
• If the instruction on manual post-coordination, that was made available for Component B, had been available for Component A this may have resulted in less issues in making code assignments.
• More in depth training was needed in order to fully utilise the ICD-11 Coding Tool and Browser.
• The production of a final Field Trial Training Guide or an ICD-11 Reference Guide would have provided participants with a greater understanding of the classification and principles associated with ICD-11.
A main cause of difficulty and ambiguity in assigning codes was the lack of understanding about the equivalent ‘four step coding process’ in ICD-11 as in a lot of instances many of the use notes, inclusions and exclusions appear at any of chapter, block and stem code levels rather than at subdivision level, see 4.4 Incorrect and Missing Notes. In order to view these and therefore code accurately, the coder would need to look at all levels in the Browser before selecting their final code(s), but this was not clear in the training.

Participants said they became more familiar with the classification as they progressed through the trials but would have preferred to have been more knowledgeable and familiar with the classification before starting the Trials.

4.2.2 Second Round
Participants were evidently more familiar with the tools and the classification when they did the second round and the training available for both components of the first round was also available to them. However it was still the case that more guidance about coding principles and chapter specific guidance was needed and it is clear that for any further field trials to take place more guidance on the coding principles and chapter specific guidance will be required.

4.3 Difficulties using the Coding Tool

4.3.1 First Round
The Coding Tool was found to be generally user friendly, however during the first round participants had difficulties in finding appropriate codes using the Coding Tool and the majority of problems identified by participants were due to difficulties in the use of the Coding Tool. First round participants reported that they were unable to find some conditions using the Coding Tool because:

- conditions were difficult to search for,
- conditions could not be found at all and didn’t appear to have an entry in the Tool,
- some conditions returned such a large list of results that it was difficult to know which code was the correct one to assign (this was compounded by the lack of or missing notes, see 4.4 Incorrect and Missing Notes),
- it was unclear from the returned results what the appropriate code should be.

In some cases participants resorted to using the search facility in the Browser or manually browsing the Morbidity Mortality Statistics (MMS) linearization to try and find a suitable code and they had to make assumptions on correct code assignment because they couldn’t find a code they thought was appropriate.

Coders are accustomed to clear Lead terms and modifiers in ICD-10 and the lack of these in ICD-11 made searching difficult as it was not clear which term should be searched for first and how to construct a search string of text.

There was a lack of cross-referencing in the Coding Tool. In ICD-10 cross references are provided in the Alphabetical Index to ensure that all possible terms or its synonyms are referenced by the coder and cross references explicitly direct the coder to other entries in the index. However this lack of cross references meant that participants were uncertain about
how to accurately search for terms when the term they had searched for had generated no results and on occasion participants found the appropriate code either by using their pre-existing knowledge of a condition or by referring back to the ICD-10 Alphabetical Index for an idea of alternative terms to search for. They also referred to the ICD-10 Tabular List for the location of the condition in ICD-10. Cross references (as well as inclusion and exclusion notes in the Browser) would prevent confusion and aid correct code assignment.

For example: For **Pleomorphic adenoma of right parotid gland** participants were unable to find a suitable code by entering the terms in the Coding Tool; the lack of a cross reference to code as either a benign neoplasm or a malignant neoplasm led participants to assign various codes including **Benign neoplasm of major salivary glands** and **Malignant neoplasms of parotid gland**.

It was identified that that in some cases the Coding Tool returns less results for abbreviated versions of a term. For example fewer results are returned for 'COPD' than 'Chronic obstructive pulmonary disease'. In other cases the opposite is true and the Coding Tool returns more results for the abbreviated term. For example the Coding Tool did not return results for 'coronary artery disease'; however a search for the abbreviation ‘CAD’ returns results directing to the code for **Coronary atherosclerosis, unspecified**. The index term CAD - [coronary artery disease] is present at this code so one would expect the terms in square brackets to also return a result in the Coding Tool but this was not the case.

### 4.3.2 Second round

For the second round, in addition to more index terms being made available, WHO had also made improvements to the functionality of the Coding Tool by introducing:

- **Global word substitutions** which mean that if a term is not present in the Coding Tool it will direct to a synonymous term.

  For example entering a search term of ‘lung cancer’ would previously only return codes containing an index term or inclusion where the terms cancer and lung both appear in the ICD-11 MMS. In the updated Coding Tool the system now associated ‘cancer’ with ‘malignant neoplasm’ so searching for ‘lung cancer’ will return malignant neoplasm of lung.

- **Automatically indexed post-coordinated combinations** for the following axes:
  - Laterality
  - Course (acute /chronic )
  - Specific anatomy (when the value set has less than 50 items)

  The system indexes all combinations created by joining all of the index terms of the search term together with all of the terms used in the allowed post-coordination values. So the user can enter a complex search term containing the full diagnostic

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3 This has been corrected in Coding Tool both ‘CAD’ and ‘coronary artery disease’ have entries directing to **Coronary atherosclerosis, unspecified**
statement and the search will automatically provide a post-coordinated combination as a result (where available).

For example if a complex search term, such as ‘Left frontal Glioblastoma’ was entered into the search box, no results would be returned and the user would have to search for a single term and try and build the additional terms, such as site and laterality, into any available post-coordination functionality.

Now, entering ‘Left frontal Glioblastoma’ will provide the post-coordinated code combination of glioblastoma, left side and frontal lobe.

- Flexible search option that can be selected when the search does not return any results and shows a broader set of codes by returning results that do not contain all of the terms entered into the search and uses similar synonyms that are not an exact match.

For example, searching for “terminal hypostatic pneumonia” would previously return no results. In the new Coding Tool, although on initial search no results will be returned, by clicking on flexible search option the system returns hypostatic pneumonia as a result despite the word terminal not being present.

As a result of the improvements to the Coding Tool less of the issues identified in the second round were due to the Coding Tool. The additional functionality and the addition of more index terms by WHO made it easier to find terms in the Tool. Whilst the two specific examples given above still persisted in the second round the same issue that affected other diagnoses have been corrected.

### 4.4 Incorrect and missing notes (including inclusion and exclusion notes)

#### 4.4.1 First Round

There was a general lack of notes (inclusion and exclusion notes) in the ICD-11 MMS. In some cases where inclusion notes were present participants felt they were incorrect with some conditions classified at an inappropriate code. For example Urinary sepsis was an inclusion term of Urinary tract infection.

The lack of inclusion and exclusion notes in the ICD-11 MMS led to ambiguity in code assignment and the assignment of a number of different codes for the same condition in some cases; this was compounded by conditions being difficult to find or missing in the Coding Tool. For example for right breast angiolipoma the Coding Tool only returned search results for angiolipoma of unspecified site. As the site is known participants doubted whether this was the correct code and if a more specific one was available elsewhere. Some participants opted for this code whereas others opted for Other specified benign neoplasm of breast or Benign neoplasm of breast, unspecified. Inclusion/

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4 This Inclusion term has been removed from the classification
5 The Coding Tool now returns angiolipoma of unspecified site but in the Browser post-coordination functionality has been added for specific anatomy and histopathology.
exclusion notes (as well as entries and cross references in the Coding Tool) would have prevented confusion.

There was confusion regarding the difference between the conditions listed under ‘All Index Terms’ and those listed as ‘Inclusions’ at a code within the Browser. The Browser listed the Index terms that can be used to reach the selected code, using the Coding Tool, under the heading ‘All Index Terms’ at each code. Some codes only have a heading of ‘All Index Terms’ and other codes have headings of ‘Inclusions’ and ‘All Index Terms’ and where this is the case the conditions listed under each heading are not always the same; there may be less conditions listed under the Inclusions heading than the ‘All Index Terms heading’. If the terms listed under ‘All Index Terms’ are the terms used to reach that code then they are classified at that code so shouldn’t they also be listed as Inclusions? For example there are 21 entries listed under ‘All Index Terms’ for Type 2 diabetes mellitus but there is only one entry listed as an Inclusion.

4.4.2 Second Round
Whilst it was identified that there is still a lack of inclusion notes at the actual code these are often included as index terms within the Coding Tool and as more are added by WHO, finding the correct code is getting easier. However there is still a lack of exclusion notes.

4.5 Post-coordination functionality not present

4.5.1 First Round
Participants identified that post-coordination functionality was not available in all cases and had not been implemented throughout the ICD-11 MMS. In some cases the Coding Tool directed to an unspecified form of a condition and the participant felt that they should be able to post-coordinate the condition to provide further detail, however post-coordination functionality was not available. For example at the code for Lipoma, unspecified\(^6\) post-coordination was not available to indicate that the site should also be coded.

Where codes are available that classify a condition due to another condition it is not always clear if the other condition should be coded, this would be clarified with the availability of post-coordination. For example where codes are available for anaemia due to another condition, i.e. Anaemia of chronic disease and Anaemia of acute disease\(^7\) it was not clear that the condition that caused the anaemia should also be coded. It may seem obvious to some that both codes should be coded, however this should be clearer in the ICD-11 MMS to ensure completeness and accuracy.

Whilst manual post-coordination was possible it was not clear to participants undertaking Component A: Line coding as it was only explained fully to participants in the training for Component B: Case Coding.

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\(^6\) Post-coordination functionality has been added for specific anatomy and histopathology at Lipoma, unspecified.

\(^7\) Post-coordination functionality for ‘Has causing condition’ has been added at Anaemia of chronic disease but not at Anaemia of acute disease.
4.5.2 Second Round
It was clear that WHO were still working to add post-coordination at all places necessary during the first round because the functionality was available in many more codes in the version used for the second round. Manual post-coordination was also clearer because all participants were aware that this was possible and had the instructions from the first round available to them to refer to if needed.

4.6 Sequencing of codes is unclear
In both rounds participants indicated that there was a lack of sequencing rules and guidance in ICD-11 which led to differences in sequencing of codes. Sequencing of the codes assigned varied depending on the first term searched for in the Coding Tool and how the case was worded.

There were occasions where the codes selected by participants were the same but they had been sequenced in different orders.

In cases where post-coordination functionality was present for conditions due to another condition it was not clear what sequencing should be applied, whether it’s the causative condition or the resultant condition. For example, for **Obstructive apnoea secondary to tonsillar hypertrophy** it was unclear if the apnoea\(^8\) or the tonsillar hypertrophy should be sequenced first.

This was also the case where the term ‘with’ is used to show that two conditions are present. For example **Kaposi’s sarcoma of the soft palate with AIDS**, it was unclear if the AIDS or the sarcoma should be sequenced first.

Some participants assigned extension codes in the primary position, however extension codes must not be used in a primary position. This may highlight that this was not made clear enough in the training materials or could indicate a difficulty in finding a stem code or even a lack of a stem code for the concept. This also indicates the need for inbuilt checks in any software designed to be used for the assignment of ICD-11 codes.

Further trials will need to include guidance on how to sequence codes.

4.7 Unspecified forms of conditions not classifiable
4.7.1 First Round
There were occasions where the unspecified form of a condition was not classifiable in ICD-11 and there was a lack of codes for Not Otherwise Specified (NOS) terms; either the code was missing or an inclusion note was not present.

For example there was no Coding Tool entry and no code or code with an inclusion for ‘lobar pneumonia NOS’ or ‘unspecified lobar pneumonia’. There were only codes with the inclusion

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\(^{8}\) Post-coordination functionality has been added at **Obstructive sleep apnoea** with the ability to add **Hypertrophy of tonsils** when associated with each other. This places the **Obstructive sleep apnoea** before the **Hypertrophy of tonsils**. Post-coordination functionality is not available at **Hypertrophy of tonsils**.
of 'lobar pneumonia caused by specific organism'\(^9\), but not for when the organism is not stated.

### 4.7.2 Second Round
As with the specific example given above index entries and inclusion terms have been added at codes where these are missing, although there are still cases where these are missing.

### 4.8 Should conditions be linked and cluster coded?

In both rounds, where the terms ‘and’ and ‘with’ were used in the diagnostic statement participants were unsure if this implies that one condition is due to another, i.e. linked, or if they are merely just both present. This meant that participants were unsure whether to post-coordinate the conditions and cluster code them in order to show a link or whether they should code the conditions in separate ICD-11 code fields. Many participants applied the coding adage of ‘coders must never assume a link’ and coded the conditions separately. For example *Diabetes mellitus with chronic renal failure*, some participants used cluster coding to link the conditions whilst others entered them as separate conditions.

Similarly where a code existed that described both conditions, where ‘with’ or ‘and’ were used in the case participants were unsure whether to link the conditions and use the single code or if separate codes should have been used. For example, for *Parkinson's disease and dementia* some participants chose to make a link between the conditions and assign *Dementia due to Parkinson disease*, whilst others chose to code the conditions separately\(^10\). Where they were coded separately there was variation in the sequencing.

Any further review will need to include clear guidance on when to link codes and what ‘and’ and ‘with’ should be understood to mean in ICD-11.

### 4.9 Structural issues

#### 4.9.1 Coding to the furthest level possible

It was not always clear to which level codes should be assigned as some participants, in both rounds, assigned category codes, whilst other participants tried to go to the furthest level possible. This is partly because appropriate codes were not always available at a sub level within a category and also due to the fact that inclusion notes are placed at category level and not always replicated at code level meaning they are not always seen by the user because the Browser displays a single code on each screen.

In ICD-10 the structure is clear as the classification is separated into chapters, blocks, categories and codes and each of these is clearly labelled and coders know to code to the furthest level possible. Coders know that category codes can only be assigned where they have not been subdivided into four-character codes. However this is evidently not as clear in ICD-11 and it needs to be made clearer either using visual cues or using in built checks in the software to indicate when a code at a certain level cannot be used.

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\(^9\) An entry for Lobar pneumonia NOS is available at [Pneumonia, organism unspecified.](#)

\(^10\) 20-03-18 A ‘Coding Note’ has been added at [Dementia due to Parkinson disease](#) instructing that the code is provided for use as a supplementary or additional code when it is desired to identify the presence of dementia in diseases classified elsewhere.
For example: For the diagnosis ‘Bronchitis with chronic obstructive pulmonary disease’ some participants chose the category code **Chronic obstructive pulmonary disease** but should have chosen a code within that category, such as **Chronic obstructive pulmonary disease, unspecified**. This may be partly because the inclusion notes are placed at category level and are not repeated at the unspecified code and because post-coordination functionality was available at the category code only which gave the impression the category code can be assigned rather than the code that describes the unspecified form of the disease.

### 4.9.2 Visibility of block level codes

Codes only appear from 4 character level in the ICD-11 MMS Browser so if a user wants to aggregate up to a higher level, for analytical purposes, this will be difficult if looking in the Browser as only the descriptions and not the codes for each block are visible. However the print versions do provide the block level codes and the descriptions. It is inconvenient to expect users to have to look in the printed versions in order to see this information rather than being able to access it in the Browser.

For example, Chapter 01 Certain infectious or parasitic diseases

In the Browser only the descriptions of the blocks can be seen

- Chapter 01 Certain infectious or parasitic diseases
- - Gastroenteritis or colitis of infectious origin
- - - Bacterial intestinal infections
- - - - 1A00 Cholera

In the printed version the block description and codes can be seen (highlighted):

- Gastroenteritis or colitis of infectious origin (**BlockL1-1A0**)
  - *Exclusions:* Intestinal fungal infections
- Bacterial intestinal infections (**BlockL2-1A0**)
  - *Exclusions:* Bacterial foodborne intoxications (**BlockL2-1A1**)
  - Abdominal actinomycosis (**1C10.1**)

### 4.9.3 Structure of notes and index entries

Verifying a code selection can be time-consuming when there are a high number of inclusions contained within the code and shown in the Coding Tool. Whilst it is a principle function of a classification for a number of conditions to be included at one code it could be made easier for the user if the inclusions were listed in alphabetical order within the Coding Tool. For example, searching for Pneumonia in the Coding Tool returns **Pneumonia, organism unspecified** and has inclusions listed in the following order:

- Pneumonia
ICD-11 Field Trial Findings – Rounds 1 and 2

pneumonia NOS
infectious pneumonia
Atypical pneumonia
hypostatic pneumonia
lobar pneumonia NOS
orthostatic pneumonia
chronic pneumonia NOS
multifocal pneumonia
PN - [pneumonia]

The list would be clearer and aid the user if these inclusions were listed in Alphabetical order.

Similarly within the ICD-11 MMS linearization, where a code has a note with a number of conditions listed these should also be listed in Alphabetical order. For example Viral pneumonia has Exclusions listed in the following order:

- aspiration pneumonia (CA71.0)
- Influenza with pneumonia, virus not identified (1E32)
- Severe acute respiratory syndrome (1D65)
- lipid pneumonia (CA71.1)
- Idiopathic interstitial pneumonitis (CB03)
- Aspiration pneumonitis due to anaesthesia during labour or delivery (JB0C.0)
- Pulmonary complications of anaesthesia during pregnancy (JA67.0)
- Congenital pneumonia (KB24)
- Pneumonitis due to solids and liquids (CA71)
- Pulmonary complications of anaesthesia during the puerperium (JB43.0)

4.9.4 Incorrectly numbered codes
4.9.4.1 First Round
In ICD-11 the code for ‘other specified’ and ‘unspecified’ forms of a condition end with ‘.Y’ and ‘.Z’, however it was noticed that there were some ‘other specified’ and ‘unspecified’ forms of a condition that ended with ‘.3’ and ‘.4’.

4.9.4.2 Second Round
The codes incorrectly ending in .3 and .4 have been corrected and no further instances were identified.
4.9.5 Extension code length

4.9.5.1 First Round
It was felt that the code length of codes in the Extension codes chapter was too long with some being 12 characters in length. For Example XS1566645271 Grade 0.

4.9.5.2 Second Round
Extension codes are now limited to 6 characters long and whilst this makes them easier to read, they are not listed in a logical manner in keeping with the rest of the classification. They appear to be randomly created which makes it difficult for the user to understand where the code sits within the hierarchy of the classification without seeing it in the context of the hierarchy. In addition the category they are classified within do not have codes assigned to the description. For example:

X Extension Codes
Severity Scale Value
Temporality
Aetiology
   Causality
   Infectious Agents
      Bacteria
         XN5PZ Gram Negative Bacteria
         XN25B Acinetobacter
            XN8LS Acinetobacter baumannii
            XN0DS Acinetobacter nosocomialis
            XN2QH Acinetobacter pittii

If the user saw the code XN2QH Acinetobacter pittii in a string of codes and wanted to understand where that sits within the classification they could not locate it, using the code number, other than knowing that it’s an extension code because it starts with an X.

4.10 Use of obscure and confusing terms in code descriptions

Participants found that some of the terminology used within ICD-11 is confusing or unlikely to be used in the medical record.

For example ‘haptens’, ‘biocides’, ‘cutting oils’ and ‘exogenous’ in Allergic contact dermatitis due to allergenic haptens derived from plants or organic matter, Allergic contact dermatitis due to industrial biocides, cutting oils or disinfectants and Dermatitis due to exogenous factors. These terms are unlikely to be written in the medical record and will require the coder to perform research or will require definitions within the classification in order to use the codes correctly.
4.11 Injury, poisoning or certain other consequences of external causes and External causes of morbidity or mortality

4.11.1 First Round
Participants found it particularly difficult to assign codes from Chapter 22 Injury, poisoning or certain other consequences of external causes and Chapter 23 External causes of morbidity or mortality because it was not easy to find external cause codes using the Coding Tool, the structure of these chapters is confusing and there was an overall lack of guidance. In addition feedback indicated that the use of ambiguous terms in the diagnostic statement compounded the issues and led to many terms being practically impossible to locate in the Coding Tool.

For example, for **Cracked insulin pump** ‘cracked’ was not listed with any device, for **Fracture of femoral artery stent** there were no results for ‘fracture stent’ and for **Dislocated left total hip replacement** no results were found for a ‘dislocated joint prosthesis’.

There is clear instruction on the different ways postprocedural complications can be coded in ICD-10 but due to lack of guidance prior to field testing it wasn’t clear to participants whether these same rules apply in ICD-11.

For example, for **Cellulitis of postoperative wound of lower leg** it was unclear if a body system chapter postprocedural code or a Chapter 22 postprocedural code is required in primary position followed by a code from Chapter 23 External causes of morbidity or mortality codes.

A common cause of difficulty was due to the Coding Tool not featuring the same terminology that is used to locate postprocedural complication lead terms in ICD-10, e.g. Complication, Displacement.

There was a lack of detail in the descriptions of codes in Chapter 22 leading to too many terms in the Coding Tool being linked to a single code in the classification.

4.11.2 Second Round
WHO did not include any questions relating to these chapters in the second round because they were in the process of updating and refining them, including adding instructions into the reference guide. Any further review will need to test the instructions in the reference guide.

4.12 Coding infectious agent and resistance
There are codes that classify infections and the broad type of infectious agent causing the infection. Some of these codes have post-coordination options which allow for codes to be added to further specify the infectious agent and post-coordination options to add codes to indicate if the infectious agent is resistant to drugs.

However in some cases if both the infectious agent code and the infectious agent resistant to drugs code are used then the specific type of infectious agent is specified twice and it is not clear if these codes should be used as this may be felt to be double coding. If there are post
co-ordination options listed at the code and the information is available in the medical record is it mandatory to use the codes even if this leads to repitition?

For example, should the diagnosis of Pneumonia due to MRSA be coded as:

**Pneumonia due to Staphylococcus**  
**Staphylococcus aureus** (infectious agent)  
**Methicillin-resistant Staphylococcus aureus**  
Or  
**Pneumonia due to Staphylococcus**  
**Methicillin-resistant Staphylococcus aureus**

### 4.13 Loss of specificity

In the main ICD-11 offers more granularity and specificity than ICD-10 however in both rounds of the trials participants identified instances where codes were not detailed enough and specificity was lost in ICD-11. In some cases a condition could be coded much more specifically in ICD-10.

For example, for **Anaemia in neoplastic disease** and **Anaemia secondary to chronic renal failure** ICD-10 has specific Index entries and codes for these statements but this is not the case in ICD-11. There was no entry in the Coding Tool for these statements and no specific code either with the most appropriate code appearing to be **Anaemia of chronic disease**.

For example, **Asthma with COPD** is classified at **Chronic obstructive pulmonary disease** and the asthma is not coded separately. Participants questioned whether this is clinically and epidemiologically correct as these are two distinct conditions.

### 4.14 Too much granularity

Conversely to 4.13 Loss of specificity, in a small number of instances the code descriptions are over complicated and there are too many codes for some conditions. For example, **Allergic contact dermatitis organised by allergen class** is sub divided into thirteen 6-character codes with each subdivision containing three 7-character codes. The subdivisions describe occupational and non-occupational allergic contact dermatitis. It would be very unlikely to see this level of detail described in the medical record. Participants found it difficult to find the correct code because the descriptions are so granular.

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11 Codes have been added for **Anaemia in neoplastic disease** and **Anaemia in chronic kidney disease**

12 **Allergic contact dermatitis organised by allergen class** has been removed and the number of subdivisions under **Allergic contact dermatitis** has been reduced to 13 codes.
4.15 Selecting the “main condition” and “other conditions” in ICD-11

Feedback identified that the WHO definition of main condition is not clear enough and participants sometimes struggled to apply the definition. There was a mixed response to the definition with some participants stating they would be unable to apply this whilst others said they would have no problem implementing the definition. Comments regarding the main condition definition indicated that:

- Determining whether the main condition was the correct main diagnosis was difficult, for example, the first scenario had two presenting complaints which arguably could both have been the main condition being investigated.
- If participants disagreed with the main condition they struggled to advise which morbidity rule suited the scenario.
- Participants commented that whilst they understood the definition, they had expected to have changed the condition more frequently than required leaving them thinking they didn't understand it at all.
- The cases only covered a small number of scenarios and it would have been beneficial to have included scenarios where a patient was admitted for a condition and another condition arose or a chronic condition flared up and became the main condition treated as can often happen in real life.

4.16 Effective Sanctioning rules

During the first round there was no way for participants to know if they had post-coordinated a condition that could be classified using a single code that was available elsewhere in ICD-11. When undertaking the second round the availability and functionality of sanctioning rules was evident. If the user tried to post-coordinate a condition using a combination of codes and a single code was present elsewhere the Browser provided the user with the single code.

For example, Ecoli UTI. If Urinary Tract infection, site not specified due to other agent or Urinary tract infection, site and agent not specified was selected in the Browser and the user then tried to post-coordinate the infectious agent of Escherichia coli the Browser provided the single specific code for Urinary tract infection, site not specified, due to Escherichia coli.

5 Conclusions

The field trials have been a positive and beneficial exercise in identifying issues and areas for WHO to consider as part of the ICD-11 development and improvement. They provided interested users of the classification an opportunity to use the classification and have given NHS Digital an understanding of the possible problems that may be faced and potential benefits it may bring if and when ICD-11 is adopted.

The first round survey results indicated that 80% of respondents felt the classification still required further work in order for it to be ready to use, however 73% of respondents
indicated that ICD-11 is an improvement on ICD-10. This is extremely encouraging in that
the majority of respondents recognise the potential and benefits of ICD-11 in terms of
statistical and clinical data. Participants indicated that ICD-11 will be able to capture far more
detail, the addition of conditions and the ability to post-coordinate and cluster code
conditions in order to link conditions were all seen as positives and the presence of
sanctioning rules and improvements to the Coding Tool provided an insight into the
efficiency and usability of the ICD-11 tooling.

Whilst the high level issues identified during the first round were still present to some extent
during the second round, the fact that most of the issues affecting individual codes were
corrected shows the pace at which ICD-11 is being developed and the progress WHO have
made. It is positive to see changes being made to the classification as a result of the
feedback received from the field trials we have conducted. It will be important to see how the
high level issues have been rectified in the June 2018 frozen version.

6 Next steps

Over the coming months we will review all of the issues that were still present during the
second round of the trials to assess if/how they have been rectified in the the ICD-11
advance preview.. This will include a full and in depth review of the reference guide.

We are also undertaking a third round of trials, between 3 September and 30 November,
using the advance preview based on UK specific diagnoses and patient cases and will
include more guidance on the ICD-11 coding principles and chapter specific guidance so
many of the issues identified should not occur to the same extent as in the first two rounds of
the trials.

We will also be creating an area on Delen where ICD-11 change requests can be submitted
to us where there is evidence that improvements still need to be made within the
classification so that we can review and submit them to WHO.

7 Acknowledgements

The Terminology and Classifications Delivery Service team would like to thank the
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the trials. Participants dedicated a considerable amount of time to be involved, in some
cases they did the work in their own time, at a busy time of year and at relatively short
notice. We would also like to thank the managers of the participants who allowed their staff
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