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**Australian Institute of
Health and Welfare**

ICD-11 Review stakeholder consultation report

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Australian Government

**Australian Institute of
Health and Welfare**

ICD-11 Review

Stakeholder consultation report

2019

Australian Institute of Health and Welfare
Canberra

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Executive summary

The 11th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-11) was developed by the World Health Organisation (WHO), released in 2018 and adopted by the Seventy-second World Health Assembly in May 2019. In addition to updated scientific content, ICD-11 has been developed for use in electronic environments and is linked to relevant other classifications and terminologies (WHO 2019). In these respects, ICD-11 represents a significant advance on the 10th revision of ICD, currently in use in Australia and internationally.

The Australian Institute of Health and Welfare (AIHW), as the Australian Collaborating Centre (ACC) for the WHO Family of International Classifications (WHO-FIC), was commissioned by the Commonwealth Department of Health to undertake a review of ICD-11 (the Review) and to explore the case for implementation in Australia.

The Review commenced in 2018 with a stakeholder workshop to inform the consultation process. Twenty individual and group consultations were then conducted between January and April 2019, with representatives from Australian governments, the New Zealand Ministry of Health, the private health sector, the medical software industry and individuals with expertise in classification development and statistical reporting. Six common themes emerged from these consultations: governance (national and international); workforce; health information infrastructure; resources, settings and timeframes; communication and education; and the procedure/intervention classification.

Governance arrangements for clarity around maintenance and management

With respect to governance, stakeholders expressed a need to understand arrangements at both national and international levels and wanted clarity around where the responsibilities lay for ongoing development, maintenance and local management of the classification.

Workforce capacity and capability to fully realise the benefits of a new classification

Workforce issues raised by stakeholders related to the capacity and capability of the existing workforce. Those with previous exposure to ICD-11, through WHO developmental processes, understand the future workforce requirements. These people discussed the need for more data scientists, data brokers and documentation specialists to fully realise the benefits of ICD-11. It is expected that clinical coding will be largely automated (about 80%) within the next few years, leaving the clinical coding workforce to transition to new roles in the electronic environment.

Infrastructure planning required for electronic health information systems

The full benefit of ICD-11 is realised when it is integrated into an electronic health record. Concern was expressed that the roll out of electronic records is not consistent across Australia, being different between jurisdictions and between public and private health networks. Vendors have ten-year roadmaps and at this stage have made no provision for ICD-11 implementation, almost certainly due to lack of information about this new classification. These issues may prove to be a barrier to implementation in some settings.

Resourcing requirements are currently unknown

Stakeholders had insufficient knowledge about the technical developments in ICD-11 and the likely timeframes for implementation to be confident about providing information on resources that will be needed. They agreed that the integrated nature of existing health data systems means that the implementation of ICD-11 is not simply a matter of replacing one classification with another, as was largely the case when ICD-10 (and ICD-10-AM) replaced

ICD-9-CM in the late 1990s. It was also noted that the different settings in which ICD-11 can be implemented may create different pathways to implementation with different resource requirements.

Communication and education is key to stakeholder engagement and acceptance

It became apparent that comprehensive communication and education should be provided as soon as possible. Suggestions were made for case studies to be developed that illustrate the new concepts in ICD-11, for pilot programs to be undertaken to inform larger and more complex implementation programs and for the establishment of implementation committees to manage communication and education in advance of implementation. Education material provided by the WHO may be useful as the basis of Australian specific education.

Complementary intervention classification is a consideration

Some stakeholders raised questions about an accompanying procedure/intervention classification to ICD-11. The WHO is developing an International Classification of Health Interventions (ICHI) which could be considered as a replacement to the Australian Classification of Health Interventions (ACHI). Significant investigation will be needed to ascertain the need to update Australia's existing intervention classification, the suitability of ICHI and the timing of a replacement.

Strength and opportunity in the digital nature of ICD-11

A SWOT analysis of the information collated through the stakeholder consultation process revealed:

- Significant strengths and opportunities related to the digital solution that ICD-11 provides for improved output reporting, linkage of information from multiple sources, co-ordination of the flow of data from eHealth systems to statistical outputs, the capacity to collect data not previously able to be collected, improved international comparability of health data and the opportunity to reassess many existing processes and systems.
- Weaknesses related to outstanding work to complete some aspects of the classification, the lack of detailed documentation about the differences between ICD-10 and ICD-11 and the lack of mapping tables between ICD-11 and commonly used terminologies such as SNOMED, which underpin electronic health records.
- Threats related mainly to perceived underdeveloped governance arrangements and relationships between terminologies and classifications, workforce issues, lack of education material, and different levels of electronic health record maturity, especially between public and private sectors.

Recommendations to advance readiness for ICD-11 implementation

Key recommendations, drawn from the stakeholder consultation, the key themes and the SWOT analysis related to:

- international and national collaborative efforts to take advantage of work being done in other countries to prepare for ICD-11 implementation and to ensure that Australia's various information agencies are working together to achieve the benefits promised by ICD-11.
- the committee structure that may be needed to manage implementation and other projects that could be undertaken, possibly in the short to medium term, to advance Australia's readiness for ICD-11 implementation.

Background

The International Classification of Diseases and Related Health Problems (ICD) is a statistical classification maintained by the World Health Organization (WHO). The use and application of ICD is widespread in health care systems around the world where, in addition to local applications such as funding model development and patient safety and quality monitoring, it is used to produce vital statistics for national use and international comparison. These vital statistics include Cause of Death and a range of morbidity related reports.

A resolution on the new revision (ICD-11) of the classification was presented to the World Health Assembly 20–28 May 2019 for endorsement and adoption by member states from 1 January 2022. The resolution, along with the report on ICD-11 by the WHO Director-General, is available from the WHO website:

- http://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_29Add1-en.pdf
- http://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_29-en.pdf

The Australian Institute of Health and Welfare (AIHW), as the Australian Collaborating Centre (ACC) for the WHO Family of International Classifications (WHO-FIC), was commissioned by the Commonwealth Department of Health to undertake a review of ICD-11 (the Review) and explore the case for adoption in Australia.

This is the review report, informed largely by a stakeholder consultation process. This Review report consists of:

- an overview of the stakeholder consultation process
- a summary of the common themes emerging from the consultation
- a SWOT analysis in relation to ICD-11 and Australia
- recommended strategies to support system readiness for implementation of ICD-11.

In addition, this document includes, as attachments, a pre-consultation document that was provided to consultation participants, and a summary of information gathered from participants in response to the questions in the pre-consultation document, and on which the Review report was based.

Stakeholder consultation process

The Review was to be underpinned by a stakeholder consultation process, informed by a Stakeholder Consultation Strategy. A workshop was held in September 2018 involving stakeholders from the ACC and the AIHW's National Health Data and Information Standards Committee with the aim of discussing ideas, considerations and consultation requirements to develop a case for potential adoption of ICD-11 in Australia.

Stakeholder consultations were then conducted with multiple stakeholders between January and April 2019. These consultations consisted predominantly of face to face meetings with attendees numbering from just one or two key stakeholders to approximately 20 in some jurisdictional meetings. In six cases the consultation was conducted by teleconference. All consultations were led by Jennie Shephard who was accompanied and assisted by AIHW staff. Reports of each consultation were written up and a summary report produced.

Stakeholders were provided with a pre-consultation document (Appendix B) which contained specific questions about their current use of ICD and other classifications, their understanding of ICD-11 and their opinion about ICD-11 with respect to its potential impact on their work and their workforce.

Most stakeholders had not been involved in the development of ICD-11 and had no, or very little, exposure prior to the consultation. The pre-consultation paper represented their first opportunity to consider the implications of a new ICD becoming available. Many assumed that implementing ICD-11 would simply be a matter of replacing ICD-10 with ICD-11, whereas the probable reality (which the minority of stakeholders were aware of) is that ICD-11 implementation would involve major system change/re-engineering. The fact that ICD-11 would possibly represent the last major update to the ICD, that is, it is unlikely that there will be an ICD-12, was new information for many of them.

A second workshop was held on 16 April 2019 where further discussions clarified some issues that had been raised through the stakeholder consultations and suggestions were made for further activities that could be undertaken to inform the decision-making process and prepare for implementation.

The Australian Health Classifications Advisory Committee (AHCAC) is the primary source of advice and guidance for this Review. An interim consultation report was presented to AHCAC on 1 March 2019. Discussions at that meeting determined that the SWOT analysis, presented in that report, could be used as a starting point to identify system-wide opportunities for re-engineering the system and to identify strategies for realising the benefits of ICD-11 (see SWOT analysis, page 6).

It was also determined at that meeting that this Review report would be presented to the Australian Health Ministers' Advisory Council (AHMAC).

Common themes emerging from the consultation

Some issues were raised by most stakeholders and are listed here as high-level themes emerging from the consultations. These themes (national and international governance; workforce; health information infrastructure; resources, settings and timeframes; communication and education; and procedure/intervention classification) are detailed below and summarised in the SWOT analysis.

National and international governance

Stakeholders raised concerns about the update process at WHO for ICD-11 maintenance and development and wanted reassurance that if these processes fail, Australia can continue to develop its classifications independently. Whether mapping tables existed for cross walking between ICD-11 and ICD-10 was not clear at the time and stakeholders were concerned about this. Questions regarding the availability of detailed information about the differences between ICD-10 and ICD-11, useful education material for countries to use and other tools necessary for implementation of ICD-11 were also raised.

It was clarified at the April workshop that WHO update processes for maintenance and development of ICD-11 were being developed (and Australia, through the ACC, was engaged in this process) and that mapping tables have been developed. The WHO has work underway on the development of a central set of resources for education, some based on what countries around the world are developing, and is working on education materials with its WHO-FIC Education and Implementation Committee.

Questions about international licencing arrangements for ICD-11 were raised at the workshop and, while answers were not available, some stakeholders understood that the WHO was working on this and it was not expected that this would become a barrier to the type of uses that Australia would have for ICD-11.

From a national perspective, stakeholders raised the need for clarity on the governance arrangements for high level management of an ICD-11 implementation, expressing that 'there is distributed responsibility around data in the system' currently. Stakeholders had many questions about who would make this decision, who would communicate and educate the broader community and who would provide resources for a change of this magnitude. It was also considered that stakeholders with responsibilities relating to digital health and stakeholders with responsibilities for classifications and statistical standards would need to collaborate on future governance arrangements. This collaboration has already commenced, and suggestions have been made with respect to the ICD-11 national governance arrangements, with presentation of the final ICD-11 Review report to AHMAC being the first step.

Workforce

Stakeholders raised concerns about the health information management workforce availability and skills level. Some stakeholders were primarily concerned about the clinical coding workforce shortage while others were more concerned about the availability of suitably qualified data scientists, data brokers and documentation specialists. Others were concerned about the impact of a new classification on data analysts and stressed the need to provide good education at this level of the system as well. With respect to clinical coders,

there is strong feedback from some stakeholders that automated clinical coding tools will perform up to 80% of the clinical coding in the next five to ten years, with one stakeholder reporting that there are already computer assisted clinical coding applications in use in Australian hospitals that have been well received. In these cases, the impetus for adoption has been to free up clinical coding skills for auditing and other 'value add' work. Concern was expressed that clinical coders may struggle to adapt because the approach to coding will be radically different to what it is now. However, the clinical coding skill set is valued, and stakeholders suggest that this workforce is supported to transition to new roles in evaluating and interpreting the data.

Health information infrastructure

While some stakeholders assumed that implementing ICD-11 would simply be a matter of replacing ICD-10 with ICD-11, others were aware that ICD-11 implementation would involve major system change/re-engineering. These stakeholders raised concerns about the readiness of the hospital systems to accommodate the digital nature of ICD-11. While some jurisdictions have state-wide solutions for the implementation of electronic medical record systems, others do not, resulting in patchy implementation outcomes. Importantly, the private sector has even less coherence around the implementation of electronic systems and this represents a significant threat to a successful implementation of ICD-11. Vendors have roadmaps of ten years in some cases and it will be important that ICD-11 is included in these plans. It is felt that vendors have little or no knowledge of ICD-11 currently.

The clustering mechanism in ICD-11 results in long code strings that some stakeholders felt would be a challenge for existing data collection systems and suggested that re-engineering of these systems may be necessary.

Some major redevelopment projects that are already being planned for implementation during the next decade may not recognise the potential implementation of ICD-11 in the same time frame. This could have significant consequences and effort should be made to inform these stakeholders. The redevelopment of Medicare's electronic claims system was presented as an example. Medicare plan to go live with this new system in 2022 but have little knowledge of ICD-11 which would impact on this system as many claims are based on clinical codes and/or Diagnosis Related Groups (DRGs).

Resources, settings and timeframes

It is not at all clear what resources will need to be put towards implementation of ICD-11 in either financial or human resource terms. Nor is it clear how much time would need to be committed to an implementation. Representatives of the States and Territories need a lot more information before they can make these estimations. No hospital Patient Administration System (PAS) or Electronic Medical Record (EMR) vendors have been consulted at this time, but stakeholders reported concerns that large financial outlays would be required to implement a change of the magnitude that ICD-11 represents in these hospital systems.

Most stakeholders considered that, for their work, the time frames to readiness would be 'at least five years'. It was noted however, that this would vary depending on the setting in which ICD-11 would be implemented. For example, mortality coding may be introduced ahead of morbidity coding and this decision would be driven by different factors than those applicable to morbidity coding. Similarly, an introduction of ICD-11 for non-admitted, emergency department or primary care collections only might be based on different decision points and require different investment in resources than a full implementation across all settings or even an implementation for admitted care settings alone. In some settings, implementation of ICD-11 could involve considerable re-engineering of the data collection and reporting

arrangements in order to implement in digitally-enabled systems, to incorporate automated coding or mapping from terminologies, to take advantage of the more detailed and digital environment-friendly nature of ICD-11, and to deliver richer data for analysis in emerging data analysis and data linkage systems that cross health sector boundaries.

Discussions at the April workshop suggested that a time frame for implementation would help stakeholders to understand their resource needs and that jurisdictional requirements will depend significantly on what resources might be made available centrally. It was suggested that smaller pieces of work in the form of pilot projects could be funded separately, would inform pathways to implementation and would provide iterative progressive building towards full implementation rather than having to fund one big piece of work up front. A suggestion to create a flow chart of the data journey through the system was made to help understand at which points in the system a cost would be incurred with an ICD-11 implementation. Another suggestion was to conduct a dual coding type study where some clinical coders code out full episodes in ICD-11; this would enable studies of the impact on grouping software of the new classification, inform any limitations of ICD-11 and provide information about the direct impact on the workforce. These suggestions were all supported and could be considered during next steps.

Communication and education

It became apparent during the consultations that national communication and education will be needed to socialise ICD-11 with stakeholders and provide enough information for stakeholders to make more informed comments with respect to ICD-11. Many stakeholders, when asked whether they were aware of and preparing for ICD-11 commented that they 'were waiting for information'. Several suggestions were made for case studies to be provided illustrating the new concepts in ICD-11 (including the clustering mechanism, the digital design and extension codes). The education package being developed by WHO would potentially provide the basis for national education packages and suggestions were made at the April workshop for the establishment of implementation committees that could have responsibility for managing communication and education content and processes.

Procedure/intervention classification

As ICD-11 is a disease classification, issues regarding Australia's procedure/intervention classification may not be directly relevant to the discussion of ICD-11 adoption and implementation. However, many stakeholders raised the lack of a complementary procedural classification for ICD-11 as an issue. Stakeholders felt that work to implement ICD-11 could provide an opportunity to implement a new procedure classification at the same time, particularly, as has been reported, the existing procedural/intervention classification, the Australian Classification of Health Interventions (ACHI), is at the end of its life. A new WHO-FIC procedure/intervention classification, the International Classification of Health Interventions (ICHI), is under development but at the time of the consultations there was no time frame for the availability of this.

Discussions at the April workshop concluded that ACHI could continue to be used for as long as necessary with some modifications to its block structure. It was also reported that ICHI would be ready for presentation to the WHO-FIC for consideration in October 2019. This is the same process as was followed for the development of ICD-11 and could mean that ICHI would be formally adopted a year or two later than ICD-11 in approximately 2024.

SWOT analysis

The following section provides a detailed analysis of strengths, weaknesses, opportunities and threats (SWOT analysis) of a potential ICD-11 implementation.

Strengths

The strengths of ICD-11 lie in the digital design which enables easier integration into existing systems and supports specialty linearisation and data analysis, the specificity and clinical currency of the clinical codes, a chapter of 'extension codes' that allows significant post co-ordination to collect additional information that will more fully describe the patient's condition or cause of death, and a 'clustering mechanism' that links all codes that are relevant to clinical conditions or causes of death. ICD-11 is essentially a diverse and valuable toolkit with a wide range of capabilities, some of which replicate ICD-10 (-AM), but many of which go beyond what we currently have available to us. Further details are outlined below.

- **Digital design:**
 - The foundation layer enables a common framework for integrated classifications and implementations to be developed to suit health information needs in different settings. Multiple linearisations (tabular lists) can be built from this foundation layer. ICD-11 for Mortality and Morbidity Statistics (MMS) is one such tabular list. Others may relate to specialist uses such as oncology, paediatrics, ophthalmology, etc. This means that ICD-11 can support 'seamless' statistical information across mortality and the range of health services settings (and internationally) in a way that ICD-10 cannot.
 - Multiple parenting of categories in the foundation allows statistical aggregation of data using either the primary or secondary parent. For example, *viral pneumonia* can be identified as a viral disease or as a respiratory disease; *pneumonia's* primary parent is classified under the chapter for *Diseases of the Respiratory System* and its secondary parent is classified under the chapter for *Diseases of the Immune System*.
 - An electronic coding tool has been developed by WHO which can replace the manual index and supports the development and maintenance of other automated clinical coding tools enabling a clinical coding workforce to become more engaged in 'data brokering' roles, and at least partially addresses a chronic shortage of clinical coders.
- **Capacity to realise benefits of data not currently able to be collected:**
 - Data for primary care, community health/ambulatory care and aged care settings could potentially be facilitated through mapping from SNOMED CT-AU and other terminologies. Alternatively, ICD-11 supports direct capture of data at the point of care due to its similarity with terminologies.
- **Improved specificity and clinical currency of codes:**
 - Makes codes applicable to multiple care settings including primary care, admitted patient care, mortality and specialty settings. For example, the code for traumatic cataract that would be used for inpatient clinical coding is 9B10.20. This code has been expanded using sixth- and seventh-character extensions to identify details such as 'localised traumatic opacities', 'partially resolved traumatic cataract', 'total traumatic cataract', 'cataract following rupture of capsule', and

‘cataract associated with radiation’. These more specific codes could be used in an ophthalmology specialty linearisation.

- Provides more detailed information for researchers and evidence to underpin policy analysis.
- **Ongoing support for development from the WHO as opposed to ICD-10 which will no longer be supported by the WHO.**
- **As ICD-11 contains all country modifications in its foundations and will continue to add to this foundation, there should be no need for an Australian modification.**

Weaknesses

The weaknesses of ICD-11 lie in the lack of clarity about its readiness for adoption, outstanding questions about arrangements for ongoing maintenance and development, overall governance and in some stakeholders’ limited understanding of the benefits and improved concepts in the classification.

- Readiness for adoption was identified as a weakness. While it is reported that work is progressing at the WHO and processes are being developed to manage updates, maintenance and development of ICD-11, it is also true that there is work outstanding on completing the sanctioning rules, managing a large number of proposals for development, and on completing definitions in the content model. The definitions in the content model are a new component in ICD-11 having existed only in the mental health chapter in ICD-10. As such these can be regarded as an added benefit, when complete, rather than a ‘missing’ component.
- Detailed documentation about the differences between ICD-10 and ICD-11 is not easily accessible (the ICD-11 Reference Guide is 321 pages long) and education material, while under development, is not yet available.
- Mapping from SNOMED is not yet available, and this is likely to be necessary to harness the benefits of ICD-11 in an eHealth environment.

Opportunities

ICD-11 presents opportunities to provide a mechanism for recording information across a range of settings for which structured, and analysis-ready data are not currently collected using ‘digital first’ solutions. In addition, ICD-11’s applicability to multiple care settings presents opportunities to link the patient journey, in the data collections, from primary care through to post hospital care. Opportunities exist to:

- Collaborate with other countries who are undertaking similar projects towards readiness for ICD-11 and who may also have developed tools that Australia could leverage.
- Coordinate the flow of data from eHealth applications through to the statistical worlds.
- Improve mortality (and morbidity) output reporting. The detailed information on death certificates in important areas of public health such as suicide and drug deaths, is not able to be collected using ICD-10. ICD-11, however, provides constructs within the extension chapter which would enable capture of this detail, including a full drug classification and codes for risk factors for suicide deaths.
- See continuing evolving benefits of ICD-11 with capacity in the future to link information from multiple sources using the digitally enabled characteristics of ICD-11.

- Consider a phased implementation of ICD-11, in the form of pilot projects, which would allow for different pathways to implementation to be developed for different settings and would spread resource allocation over a greater time frame.
- Use the implementation of ICD-11 as an impetus to change some things about the way we operate currently. Stakeholders expressed frustration about update processes for hospital systems including those for the current classifications and would like to see more streamlined and efficient systems in place. End users of the data also expressed frustration about frequent updates to the classification and would like a review of timelines and more transparency about the changes.
- Use the implementation of ICD-11 to redevelop databases to support more robust analysis of data.
- Support the adoption of automated clinical coding tools, including the WHO coding tool, to ensure the ongoing collection of clinically coded data despite the chronic shortage of clinical coders and freeing up existing clinical coding skills to be used in evaluation and interpretation of data.
- Introduce a new procedure/intervention classification using the same change management committees and processes as for an ICD-11 implementation. The WHO plan to include ICHI in the ICD-11 foundation layer making implementation of this procedure/intervention classification easier and with enhanced benefits in an eHealth environment.

Threats

The threats to an implementation of ICD-11 lie mainly in governance issues, workforce capacity and capability, lack of consistent levels of maturity in health care IT systems around Australia and lack of community awareness and understanding of ICD-11.

- Governance frameworks and associated support mechanisms, both national and international, are still evolving.
- Australia has some dependence on international arrangements, making us vulnerable if these fail and making it more urgent that we participate in ensuring that international arrangements are robust. This is particularly important when/if the need arises for a code to reflect emerging and/or emergency disease concepts.
- Licensing arrangements for the use of Australia's current morbidity classifications (ICD-10-AM, ACHI) and activity-based-funding classification, Australian Refined DRGs (AR-DRGs) in other countries may be impacted if Australia implements ICD-11 ahead of (or later than) other countries.
- Australia has no formal process currently for managing Australian submissions to the proposal platform of ICD-11. This may impact on Australia's capacity to ensure clinical currency of the MMS linearisation for our purposes.
- There is a need for more clarity about the use of clinical terminologies in Australia, their governance, and relationships between digital health information and statistical health information.
- Shortages of appropriately skilled workforce to support eHealth applications will impact on our ability to implement ICD-11. This includes data brokers, data scientists, data analysts, documentation specialists and health information managers.
- The lack of education material and related education about ICD-11 for the existing workforce limits its capacity to ready itself for implementation.

- The time frame required to be ready for an ICD-11 implementation is estimated as 'at least 5 years from the time of a decision being made'. It is difficult to predict what the maturity level of existing electronic implementations in our hospital and other health settings will be at that time and therefore it is difficult to anticipate the needs of the workforce or the resources that will be needed.
- Upgraded electronic health care systems (PASs, EMRs) currently being rolled out in hospitals and elsewhere may not be able to accommodate ICD-11 and hospitals will be reluctant to update these systems before a return on investment can be made. The upgrade to the Medicare electronic claims system is an example. Specific issues may relate to the clustering mechanism which will require significantly longer code strings to be collected.
- The private sector is generally not able to be as agile in adopting new classifications as the public sector due to multiple funding contracts with different time frames. Its less integrated roll out of electronic medical record systems also presents a threat to implementation of the digitally enabled ICD-11. This sector may have specific issues transitioning to ICD-11.
- There is no clear understanding in the stakeholder community of the difference between ICD-11 and ICD-10 (and ICD-10-AM) which may hinder support from jurisdictions for a future adoption of ICD-11.
- There is no current mechanism to ensure that all current, and yet to be developed, ICD-10-AM clinical codes are included in the ICD-11 foundation layer.
- ICD-11 is still largely untested. Impacts on grouping software and reliability of coded output are not yet understood.
- The digital design may result in multiple clinical coding tools being developed by multiple commercial providers. Current processes for endorsing the quality of these tools may not be adequate and may have to be expanded. Variable quality of clinical coding tools would have implications for data integrity.

Recommended strategies to support system readiness for implementation of ICD-11

1. International

- 1.1. Communicate with other WHO-FIC member states to identify, leverage off and collaborate with work they are undertaking for ICD-11 implementation and to share our findings.
- 1.2. Advocate for support from the WHO to assist with implementation of ICD-11 including support to manage the update process and the development of education and other implementation material.
- 1.3. Encourage international coordination and collaboration regarding the mapping of ICD-11 to clinical terminologies (such as SNOMED).

2. National

- 2.1. Under AHMAC auspices, establish clear national governance arrangements and a national framework for a potential implementation of ICD-11. This will facilitate common conversations across the various jurisdictions/settings/agencies ensuring that consideration of a potential ICD-11 implementation is included in their strategies and roadmaps.
- 2.2. Ensure national information strategies and any information updates about ICD-11 are disseminated widely. In addition to established dissemination pathways pay particular attention to eHealth vendors who may be developing ten-year roadmaps and to training organisations and universities who may be developing curricula for future health information workforces.
- 2.3. Consider whether a formal structure is needed to support the ACC in its work with the WHO ICD-11 update platform including whether this should include an Australian process for submitting proposals via the ACC.
- 2.4. Establish formal processes to engage with the end users of the data, particularly the research community.

3. ICD-11: potential committees

- 3.1. Consider the establishment of a pre-decision committee to continue the process of understanding what needs to be done for ICD-11 implementation.
- 3.2. Consider the establishment of an implementation committee to steer Australia's implementation of ICD-11.
- 3.3. Consider the establishment of a clinical advisory committee to provide clinical advice about updates to the classification.
- 3.4. Review Terms of Reference for existing national committees such as AHCAC to determine whether they may be suitable to lead this work.
- 3.5. The above-mentioned committees should have membership that includes expertise in ICD-11 and the health information management workforce including experts in clinical coding, data analysis, health IT systems and health system management, and their Terms of Reference should enable them to achieve the following:
 - 3.5.1. Map out possible pathways, with timelines, for implementation of ICD-11 and communicate these through appropriate forums to assess plausibility of

estimated timeframes. This should include pathways for all settings and include consideration of pilot projects.

- 3.5.2. Create a flow chart showing data transition from collection to final storage in databases and publication of reports. Use this to identify all the points at which a change of underpinning classification would impact and estimate resource implications for that impact.
- 3.5.3. Undertake risk assessment and impact analyses to fully understand implications of a potential implementation of ICD-11.
- 3.5.4. Ensure mapping between ICD-11 and ICD-10-AM is being undertaken and made available for pre-decision and implementation work.
- 3.5.5. Identify the processes for integrating ICD-11 with digital systems.
- 3.5.6. Take responsibility to develop a communication strategy to socialise ICD-11 around the country. This should include case studies to help individuals develop a working knowledge of the classification.
- 3.5.7. Consider establishing or making use of existing committees in States and Territories to deliver local education and support national communication strategies.
- 3.5.8. Undertake responsibility for developing education material for the clinical coding and health information workforce and for users of the data including data analysts.
- 3.5.9. Report through existing governance processes/committees on progress towards implementation.
- 3.5.10. Engage specifically with the private sector to understand its issues with transitioning to ICD-11. This should include both the private hospital and the private health fund organisations.
- 3.5.11. Engage with General Practitioner organisations to explore possible implementation of ICD-11, through mapping with terminologies, to capture standardised aggregate primary care data.

4. Projects to support Australia's readiness for transition to ICD-11

- 4.1. Redevelop national morbidity and mortality databases and 'future proof' new and emerging databases in primary, emergency and ambulance care. There is an opportunity here to look at patient-based rather than episode-based databases.
- 4.2. Consider the issues raised by stakeholders regarding limitations and frustrations with update processes in the current health information system and explore ways to use ICD-11 implementation as an opportunity to improve these.
- 4.3. Consider whether implementation should include all aspects of the ICD-11 'tool kit' or whether modules can be adopted in the first instance and others included in a later stage, noting that not adopting some modules may represent a backward step for Australia and that some aspects, such as the Condition Onset Flag, are already captured outside the classification.
- 4.4. Review the Australian Coding Standards (ACS) to determine if they continue to support Australia's data needs.
- 4.5. Consider what national structures would be needed to support ICD-11 maintenance in Australia and how this would impact on existing arrangements to maintain and develop ICD-10-AM,ACHI and the ACS.
- 4.6. Create national liaisons with vendors of electronic products to: facilitate collaborative relationships with health services, encourage and promote the

maturation of existing software systems so they will be able to accommodate ICD-11 to realise full benefits, understand how various bespoke applications of these systems might impact on ICD-11 implementation and to ensure ICD-11 is a consideration in their 10-year roadmaps. A national approach to user requirements would also be useful.

- 4.7. Establish communication with Registered Training Organisations and universities with the aim of creating entry level health information graduates (data scientists, Health Information Managers, clinical coders) with the requisite skill to take full advantage of a digitised health system that would include ICD-11 as the preferred classification.
- 4.8. Establish communication channels with vendors of PAS and EMR systems to fully understand the issues involved in implementation of a digital classification generally and the specific issues relating to ICD-11.
- 4.9. Ensure commercial providers of clinical coding tools are fully aware of ICD-11 and its benefits to encourage innovation in the development of these tools and establish processes for quality assurance of them.
- 4.10. Ensure processes are in place to manage licencing of classification products in Australia (coding tools, grouper software, etc.) and to manage the licensing of these products for use in other countries, especially those that may not implement ICD-11 in the same time frame as Australia.
- 4.11. Ensure backward and forward mapping tables between ICD-10-AM and ICD-11 are developed and made available for testing grouper software and other products in the case of an ICD-11 implementation.
- 4.12. Consider the need for a new procedure classification and whether or not it should be implemented concurrently with ICD-11:
 - 4.12.1. Determine the long-term viability of the ACHI
 - 4.12.2. Determine the likely readiness of the ICHI
 - 4.12.3. Consider what other options are available for Australia with respect to a procedure classification.

Appendix A: Stakeholders

The consultations held in 2019 were a mix of face-to-face discussions and teleconferences. Typically, the consultations took place over two hours with a limited number, towards the end of the consultation period, being scheduled for only one hour. These one-hour consultations focused on specific points of clarification and did not address the full questionnaire. Understanding of ICD-11 among stakeholders was mixed with a few having a detailed understanding of ICD-11 through their involvement in the development process, but most being introduced to ICD-11 new concepts, conventions and design characteristics for the first time.

Stakeholders for interview were identified by participants at the September 2018 workshop and by the stakeholders themselves recommending further stakeholders.

For consultations with state and territory health departments, a wide range of participants were invited by the key contact person. This enabled discussion of the impact of an ICD-11 implementation on various aspects of departmental work and was useful. In other consultations, a single person represented the views of the organisation (e.g. MSIA and Eurofield Information Systems) and in some cases an individual was identified for their expertise, having had a close working relationship with the WHO during the development process (e.g. Rosemary Roberts and James Harrison).

Table A1 lists the stakeholders consulted during January to April 2019.

Table A1: List of stakeholders

Stakeholder	Main contact	Role
Queensland Health	Chris Moser	Principal Statistical Data Standards Officer
Australian Bureau of Statistics	Justine Boland	Program Manager, Health and Disability Branch
	James Eynstone-Hinkins	Director, Health and Vital Statistics
Commonwealth Scientific and Industrial Research Organisation (e-health research program)	Dr David Hansen	CEO and Research Director
Medical Software Industry Association	Emma Hossack	CEO
NSW Ministry of Health	Judith Hooper	Information & Analytics Branch
Pavilion Health	Douglas Henry	Principal, Co-founder
Rosemary Roberts		Former Director of NCCH. Former consultant to the WHO
Independent Hospital Pricing Authority	James Downie	CEO
National Centre for Classification in Health	Richard Madden Vera Dimitropoulos	Co-directors, NCCH
New Zealand Ministry of Health	Tracy Thompson	Senior Analyst, Classification & Terminology
ACT Health	Peita Bonato	Program Manager Data Management and Governance

(continued)

Table A1 (continued): List of stakeholders

Stakeholder	Main contact	Role
AIHW	Vicki Bennett	Head, My Health Record Data Unit
Commonwealth Department of Health	Shane Porter	Assistant Secretary, Data Informatics and Analytics Branch Health Economics and Research Division
Victorian Department of Health	Carla Read	Manager, Health Classification and Coding
Australian Digital Health Agency	Elizabeth Donohoo	Director, Terminology Architecture, Design and Strategy
Eurofield Information Systems	Robert Minard	Software Development Manager
Royal Australian College of General Practitioners	Josephine Raw	Director, Special Projects
James Harrison		Member of WHO TAG.
3M	Kathy Wilton Jenny Barker	Coding advisors
Australian Health Service Alliance; Private Healthcare Australia	Nicolle Predl	Senior Health Information Manager

The following stakeholders were invited to participate in the consultation process, however the consultation was unable to be scheduled in the time available:

- Australian Medical Association
- Population Health Research Network
- Australian Private Hospital Association
- Primary Health Network Co-operative.

Appendix B: ICD-11 review pre-consultation paper

The consultation paper was provided to stakeholders in advance of the consultation taking place so they could be prepared for the discussion. In most cases, not all questions were discussed. This was due to the free-flowing nature of the conversations. However, all stakeholders were given the opportunity for final comments before the consultation was drawn to a close.

The World Health Organisation's International Classification of Diseases, Tenth Revision (ICD-10) is used to standardise the way we report causes of death across the world. Australia uses ICD-10 for coding mortality (cause of death) and ICD-10-AM (Australian Modification) for coding diseases and related health problems in hospitals (morbidity).

Both ICD-10-AM and ICD-10 may be used in other settings (e.g. non-admitted, emergency care services, primary care) to varying degrees around the country.

More information about morbidity data collections can be found here:

- <https://www.aihw.gov.au/about-our-data/our-data-collections/national-hospitals-data-collection>

More information about mortality data collections can be found here:

- <https://www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database/how-are-causes-of-death-coded>

The aim of stakeholder consultation is to identify all issues relevant to a potential adoption of ICD-11 so that, if and when, Australia decides to adopt ICD-11 it can start to ready its relevant systems, processes and people for implementation in some capacity.

Question 1: How does your work currently require you, or cause you, to be involved in some way with ICD-10 or ICD-10-AM?

Question 2: Tell us about what you think the limitations and strengths are of ICD-10 and/or ICD-10-AM?

In addition to the classifications mentioned above other classifications and terminologies are used in various settings around Australia. These include, but are not limited to, the Australian Classification of Health Interventions (ACHI), the International Classification of Functioning, Disability and Health (ICF), SNOMED CT and LOINC.

Question 3: Does your work currently require you, or cause you, to be involved in some way with any of these other classifications or terminologies?

Question 4: Are there any other classifications or terminologies that are relevant to your work?

The WHO's Eleventh Revision of ICD (ICD-11) aims to improve upon the ICD-10 product and to enable its potential use across a number of (health-care) settings, such as mortality, morbidity, primary care and others, without modification by individual countries. Importantly this brings the reporting of mortality and morbidity into one classification.

ICD-11 was released by the WHO in an advanced 'preview' version in June 2018 and is expected to be formally presented to the Seventy-second World Health Assembly in May 2019 for official endorsement by Member States. If endorsed, ICD-11 will then be available for implementation by Member States and there is an expectation by the WHO that its Member States will take steps to begin using ICD-11 in some capacity, whether that be exclusively for mortality purposes or for more broader application in morbidity systems and beyond.

More information is available on the WHO website via the following links:

- <http://www.who.int/classifications/icd/en/>
- https://icd.who.int/browse11/content/refguide.ICD11_en/html/index.html

The following is a link to the ICD-11 and other related resources. To specifically view ICD-11, select the ICD-11 Browser or the ICD-11 Coding Tool.

- <https://icd.who.int/>

Question 5: Were you aware that the WHO has developed an eleventh revision of the ICD?

Question 6: If so, have you been able to access information about ICD-11 and in particular do you understand how it is different to ICD-10?

Similar to previous revisions, ICD-11 contains updated clinical concepts that are in keeping with modern clinical practice. In addition, ICD-11 contains several significant developments or functions that have the potential to enhance the use of the data if they are included as part of an adoption of ICD-11. These include:

- a) a foundation component that incorporates all entities, including, but not limited to, diseases, disorders, injuries, external causes, signs and symptoms and other reasons for contact with the health system
- b) the use of a content model (diagnosis descriptions) to provide a more detailed, structured and systematic framework for each of the ICD entities
- c) a three-part model for coding complications of care which consists of: the resultant injury or harm, the cause of harm and the mode of harm. Sanctioning rules guide the coder to appropriate mode codes depending on the cause code assigned. The three-part model is further supported by a clustering mechanism described below in point d) and the use of a timing mechanism through the use of extension codes described in point e) below
- d) a clustering mechanism that allows for explicit linking of codes to fully reflect a condition, rather than assuming a link from code sequencing. For example, a cluster may contain codes for an injury, an external cause, a place of occurrence and an activity. Similarly, a cluster may contain codes for a *stroke* and all the related deficits explicitly linking the conditions
- e) development of extension codes that can be used to provide additional information about a condition. These include codes to represent things such as severity scale, coma scale, time of life, timing of the disease etc.
- f) ability to produce multiple linearisations (tabular volumes) to meet different needs (oncology, primary care morbidity, mortality)
- g) support for potential interoperability and linkage with computerised health information systems (i.e. the electronic health record) and other terminologies (e.g. SNOMED CT)
- h) multiple parenting concepts that allow for statistical aggregation of data using either the primary or secondary parent. For example, *viral pneumonia* can be counted as a viral

disease or as a respiratory disease; *asthma's* primary parent is classified under the chapter for *Diseases of the Respiratory System* and its secondary parent is classified under the chapter for *Diseases of the Immune System*

- i) a chapter for Traditional Medicine conditions and a chapter for Functioning Assessment
- j) availability via an internet based platform that replaces the need for bulky books and/or local software and supports efficient content updates i.e. the [ICD-11 Coding Tool](#)
- k) mapping tables to ICD-10 are also available.

Question 7: What advantages do you see for your work in these developments or functions?

Question 8: How do you think a national implementation of ICD-11, with or without the adoption of all the new developments/functions would impact on your work or business? For example, do you have systems in place that rely on coded data or that support the capture of coded data?

Question 9: Do you have a need to collect data in areas for which you are currently unable to collect data? For example, General Practice and/or Community Health. If so, would ICD-11 potentially fill this need?

Question 10: What do you think the consequences may be for Australia if a decision was made to not adopt ICD-11 in the foreseeable future?

ICD-11 is designed for an electronic environment. This allows for ongoing updates without impacting the underlying structure of the classification. It also allows for an electronic coding tool which potentially could replace the need for an index. It is feasible that hard copy books would not be produced for an Australian adoption of ICD-11. It is also feasible, and desirable from a WHO perspective, that there will be no local adaptations of ICD-11. All updates to the classification would be made by the WHO using the same update process as is currently used for ICD-10.

Question 11: Would the use of an electronic coding tool create a problem for you or your workforce?

Question 12: Would the update process, that is, all updates being made by WHO create a problem for you or your workforce?

The WHO has ceased to update ICD-10 and this will, over time, result in ICD-10 and ICD-10-AM becoming out of date. However, a decision to adopt ICD-11 for use in Australia has not yet been made. A lot of research and consultation will need to be undertaken before such a decision could be made and this may take several years. In addition, it is anticipated that several years lead time will be required for implementation of ICD-11 once a decision is made to implement.

Question 13: Do you have any technical projects currently underway for future implementation that may be impacted by the introduction of ICD-11? E.g. electronic health record, auto-coding, development/licencing of coding software, development of indicators for quality and safety monitoring.

Question 14: Would you be considering use of ICD-11 in eHealth environments and what do you see as the issues that would relate to its use in that context?

A decision to adopt and implement ICD-11 would require a detailed understanding of the stakeholders impacted, the resources needed, the time frames required, and the impact on existing workforces.

Question 15: What steps would you need to take to prepare for a national implementation of ICD-11?

Question 16: Do you think incremental steps could be taken to implement ICD-11 over a period of time rather than undertaking a full implementation on a given date?

Question 17: Are you aware of any projects that could be used to pilot ICD-11 or some components or modules of it? For example, could ICD-11 be used in your work environment to collect data on clinical concepts that are currently not captured (details on self-harm from emergency departments, outcomes of care for certain cohorts)

Question 18: What resources, additional to what you have now, do you think would be required to facilitate implementation? How long do you anticipate you would need these additional resources for?

Question 19: How long in advance of the implementation of ICD-11 would you need to start preparing for the implementation?

Question 20: How do you think your existing workforce would be impacted by a future implementation of ICD-11?

As previously stated, the AIHW is keen to ensure that all key stakeholders are consulted in the lead up to potential endorsement of ICD-11.

Question 21: In your area of work, who else do you think should be consulted with respect to issues relating to a potential adoption of ICD-11?

Question 22: Are there any issues that you would like to comment on that we have not covered in this pre-consultation paper?

Appendix C: Summary of stakeholder responses to pre-consultation questions

1.1 Current involvement with ICD-10 or ICD-10-AM and limitations experienced (Questions 1 and 2)

Mortality coding

Stakeholders reported that ICD-10 is used for cause of death coding in Australia. All deaths in Australia are coded by a dedicated coding team at the Australian Bureau of Statistics. Auto-coding software (currently Iris) is critical infrastructure for mortality coding and is used to code the majority of medically certified deaths. The remainder of deaths, including coroner certified deaths, are coded manually or in combination with Iris use. An underlying cause of death is determined, with multiple causes of death capturing all diseases or conditions recorded on the death certificate (or in coronial records). The Australian coronial system captures very detailed information in certain important areas of public health (i.e. suicide deaths and drug deaths) but this information cannot be captured in detail in ICD-10. ICD-11 provides constructs within the extension chapter which would enable capture of this detail, including a full drug classification and codes for risk factors for suicide deaths.

Morbidity coding

ICD-10-AM is used in the capture of morbidity data by jurisdictions and in many systems that they use to manage, measure and monitor their systems. Examples include: reports to various stakeholders from the datasets, downstream systems, data requests, perinatal collection and reporting, DRGs, clinical indicators (ACSQHC), patient experience, service planning, ED and elective surgery, program evaluation, policy analysis, epidemiology, target setting, capital development, and mapping to other classifications, such as ICD-10, or from terminologies, such as SNOMED CT.

End users (national, clinicians and researchers)

At a national level ICD-10-AM is used for national morbidity statistic reporting. Frustration is expressed at this level about regular updates to the classification making analysis difficult (diabetes cited as an example), about difficulties associated with interpreting cause and effect links in the coded data, and about lack of specificity in some areas. For example, the frequent use of *other specified* codes is not useful in some categories, while others such as the codes for pressure ulcers have very good specificity.

Clinicians and researchers also experience frustration with ICD-10 and ICD-10-AM due to lack of specificity in some areas that prevents them from identifying the cases they wish to research or study further. Examples included: inability to identify the source of infection, inability to identify bilateral fractures especially when one occurs before admission and one after admission, inability to explicitly identify illicit drug use and poisoning due to abuse of prescription drugs, inability to get details about self-harm and suicide. Australian Coding Standards were sometimes the source of these frustrations rather than the classification itself. For example, codes exist for alcohol use but are generally not able to be assigned in morbidity data; they can be used in cause of death coding and in ambulance data. Changes to clinical practice were also cited as occurring more frequently than the classification can keep pace with and this lack of clinical currency was cited as a frustration. For example,

gender issues being classified in the mental health chapter is an issue – stakeholders are pleased to see a Sexual Health chapter in ICD-11.

The inability to use ICD-10-AM across the spectrum of care settings was also expressed as a limitation of the current system. 'The dream state would be a classification that works across the spectrum of care'.

One stakeholder described ICD-11 as a very diverse, very valuable tool kit that contains in addition to the codes, post co-ordination and clustering and extension chapter. While it can replicate what we currently have in ICD-10-AM, it goes beyond this and if we simply adopt what we currently have the value proposition doesn't stack up. There are dangers that due to lack of resources and advocates for the new concepts in ICD-11 that we will not take advantage of the full benefits.

1.2 Other classifications being used (Questions 3 and 4)

Many stakeholders listed the Australian Classification of Health Interventions (ACHI) as their most commonly used other classification. There were many questions raised about whether this classification would also be updated in line with ICD-11, specifically whether the WHO classification, ICHI, would be introduced concurrently with ICD-11. ICHI is being developed along the same lines as ICD-11 (it is a database model and contains similar concepts to the clustering mechanism in ICD-11) and would complement ICD-11 if it was chosen as the preferred procedural classification. However, it is also true that any other new procedural classification is likely to be developed as a database and could be suitable for use.

Some stakeholders raised a question about the possibility of implementing a new procedural classification at the same time as a disease classification. Opinions varied as to the wisdom of taking this decision. Some considered to introduce two new classifications at the same time would be too much change and would possibly destabilise systems, especially the funding models, while others felt that to maintain a digitally enabled disease classification alongside a non-digitally enabled procedural classification did not make sense.

Stakeholders also identified SNOMED CT-AU as a terminology used to record information on diagnoses and other concepts relevant to health care. It is being used in many Emergency Department (ED) systems and underpins many electronic health record systems. It is mapped to ICD-10-AM where national reporting is required, for example, ED data being reported to the Independent Hospital Pricing Authority. It is also used extensively in General Practice systems and providers of these systems have little appetite for a change. It is used in pathology ordering systems and in cancer registries in some areas:

- ICD-O is used in cancer data and is mapped to ICD-10 or ICD-10-AM for national reporting.
- ICF is used in limited settings currently. However, most stakeholders were pleased to see a functioning chapter in ICD-11.
- ICPC+ is also used in limited settings; stakeholders did not specifically discuss these areas.

1.3 Prior knowledge of ICD-11 (Questions 5 and 6)

Most stakeholders had heard of ICD-11. However, except for those who have a close involvement with the WHO, most had little detailed knowledge of how ICD-11 works. Some had participated in field trials and were a little more informed but largely, detailed knowledge

of ICD-11 is rare. This will need to be addressed in due time but currently presents some limitations for fruitful discussions about the impact of ICD-11 on current working arrangements. It has been recommended that case studies be provided to demonstrate how ICD-11 is different from ICD-10 (and ICD-10-AM).

A small number of stakeholders demonstrated a reasonably detailed understanding of the technical characteristics of ICD-11; the database design, the multiple parenting, the need to consider how it fits with digital health systems, and eHealth product development.

1.4 Potential advantages and impacts of ICD-11 (Questions 7 and 8)

The increased specificity of ICD-11 is seen as a positive development by all stakeholders.

Stakeholders are very interested in the clustering mechanism that would allow them significantly improved capacity to interpret the data. On the negative side, the length of the code strings that would result from the clustering mechanism will create challenges for data collection and storage systems.

The database design was identified as a significant advantage by those stakeholders who develop electronic medical record solutions and/or electronic products that use the ICD (grouping software, clinical coding tools, benchmarking tools).

Stakeholders expressed the desirability of a single digital health care record that would enable data to be collected consistently, using one classification, from different care settings and from death certificates. This would enable the patient journey to be tracked efficiently. ICD-11 offers this possibility.

1.5 Areas where data is currently not collected (Question 9)

Primary care was the area most commonly cited by stakeholders as an area where a data collection is needed.

Stakeholders also discussed the possibility of ICD-11 being used to collect clinical data in collections that currently lack this capacity. Non-admitted care was the most commonly discussed collection.

1.6 Consequences of not implementing ICD-11 (Question 10)

All stakeholders considered that if Australia does not move to ICD-11, it will gradually fall behind other countries and international comparability will be compromised.

The clinical currency of ICD-10 and ICD-10-AM will eventually be so outdated that current clinician frustration with the classification will be further exacerbated.

There was concern expressed that Australia has invested a lot of effort into the development of ICD-11 and it would be counterproductive if we don't transition. There would also be loss of reputation if we didn't adopt ICD-11 after being so involved in its development.

Australia licences classification products to several other countries. These arrangements may become problematic if Australia does not move to ICD-11 and the other countries do.

Conversely if Australia moves to ICD-11 before the other countries, decisions would have to be made about maintenance of these products.

1.7 Electronic coding tool (Question 11)

Most stakeholders were unconcerned about the electronic coding tool considering that it may be useful where people currently have no ready access to code descriptions but that it would not be needed where people are already using some form of electronic tool. The 3M Codefinder is used extensively by clinical coders around the country and most clinical coders also have access to one of the two available ebooks on the market. Because ICD-11 is electronically enabled, there is an opportunity for a potential proliferation of clinical coding tools to be developed, for which quality assurance processes may need to be considered, but which would be used instead of the WHO's coding tool.

Some stakeholders considered that ICD-11 would provide an opportunity for multiple commercial products to join the market and considered that this could be a good thing. Concerns were raised that vendors who develop electronic medical records are able to insist on certain products being used and that this is not a good thing. Generally, stakeholders would like to see diversity in this market place.

At the April workshop the coding tool was advanced as a crucial part of the ICD-11 tool kit. The capacity to include, in time, codes from other classifications such as the ICF and the ICHI would make the coding tool even more valuable in the future.

1.8 Update processes (Question 12)

In discussion about the current update process for ICD-10-AM and the possibility of ICD-11 updates being fully handled by the WHO, stakeholders were mostly agreed that a system of filtering proposals locally would still be needed. It was noted that the WHO has many proposals on its platform currently awaiting attention although processes for dealing with these are being developed. While it was noted that an agreed Australian position on any proposal is preferred and systems should be established to manage this, it was also stated that the WHO proposal platform should remain publicly available for those who wished to propose updates directly to the WHO, outside of the co-ordinated Australian process. This would ensure a pathway was available for those unaware of, or unable to access, an Australian process.

Management of version control was raised as an issue. How often would updates be made in ICD-11 and would Australia have to adopt them as they were made or alternatively have to wait until they were made? Given the WHO have settled on regular/rolling updates initially and moving to a five-year update cycle once outstanding proposals have been dealt with, these comments and questions from stakeholders reflect a general lack of knowledge about ICD-11.

An Australian modification could be considered but shouldn't be needed if the foundation layer in ICD-11 works as planned. That is, countries should be able to have their country specific codes included in the foundation layer and from there the country specific code set can be extracted.

The discontinuation of updates to ICD-10 by WHO (and therefore ICD-10-AM) is seen by some as an issue that will start to impact as time goes by but not an immediate issue (as we can continue to make local updates to ICD-10-AM).

1.9 Technical projects impacted by ICD-11 (Question 13)

Apart from clinical coding tools being developed, stakeholders were not able to identify a lot of projects that may be impacted by ICD-11. One stakeholder stated that it would be very difficult to 'future proof' a product to enable it to seamlessly transition to ICD-11 from an ICD-10 or ICD-10-AM initial application. That is, they considered that considerable re-engineering of systems would be needed to accommodate ICD-11 at the time of implementation.

1.10 eHealth environments (Question 14)

There was some discussion about eHealth environments and the use of terminologies. Stakeholders generally agreed that both terminologies and classification systems are needed in a digital health information environment. ICD-11 (or an ICD) would always be needed to support the data needs of many users and to support the funding models. Researchers, planning, programs, policy makers etc. need more aggregated forms of data than a terminology provides.

Issues were raised about the lack of metadata for extracting information from terminologies such as SNOMED CT. Currently different people extract and analyse differently and therefore there is possibly no capacity to compare statistics between hospitals, for example. Mapping to ICD-11 could address this issue.

There is a gap between what electronic products such as automated clinical coding tools, can do and the technical capacity of some health care systems to install these products. This is a potential significant threat to the implementation of ICD-11.

1.11 Preparing for implementation (Question 15)

Stakeholders were united in the view that identifying all systems impacted by a new classification and all stakeholders, would be an important first step in preparing for implementation of a new classification. The integrated systems that exist now, compared to when the transition from ICD-9-CM to ICD-10-AM took place, makes a move to ICD-11 a much more complicated process.

Hospitals have a dependency on vendors to deliver products. There is uncertainty about how responsive vendors will be, especially if Australia is one of the first countries to transition. Stakeholders considered that it may be difficult to negotiate a change with them. On the other hand, one stakeholder suggested they may be champions of the change and it was noted that they also have international markets which may influence their approach. In any case, it is important that they be considered in any plan to transition to ICD-11.

The 'terminology **or** classification' argument/conversation was raised, and a suggestion made that it needs to be changed to a 'terminology **and** classification' discussion.

Real clarity around the benefits of ICD-11 and how they would be unlocked is needed.

Risk assessments and impact analyses will also need to be undertaken.

1.12 Are incremental steps or pilot projects possible? (Questions 16 and 17)

Opinions varied on this issue. Some stakeholders could see no purpose in spending scarce resources on introducing ICD-11 concepts into the existing ICD-10 or ICD-10-AM systems when a ready-made package is available in ICD-11. Why put money into developing a classification that is not being maintained internationally? Others considered that ICD-11 could be introduced for data collection in areas that currently do not collect or report clinical data or that are discrete collections that could relatively easily be transferred. Non-admitted and Emergency Department collections were often cited but also, significantly, primary and community care was suggested as an area for piloting ICD-11.

Stakeholders opposed to incremental implementation plans argued that resources would be better spent on identifying the system impact of an ICD-11 implementation.

1.13 Anticipated resources required and time frames (Questions 18 and 19)

Stakeholders felt they were not well enough informed to comment on an accurate time frame for implementation. However, most suggested a 5-year time frame would be required and this would be once a decision had been made following preliminary consultations and investigations.

The integrated nature of our health system technology and its patchy rollout was cited as the complicating factor in any implementation plan. The resourcing requirements and timeframes for implementation are likely to differ substantially across health system settings, and so an implementation plan would need to be setting-specific, with consideration given to the pros and cons of aligning approaches across settings.

Stakeholders were reluctant to put specific comments around the required resources but suggested that financially it would amount to many millions of dollars and that the clinical coding and IT workforce may be stretched beyond current capacity. Developments in the automation of clinical coding may mitigate some of the impact on clinical coders, but the lack of IT experts with good health system knowledge remains a concern.

Detailed impact analyses are needed before sensible estimates of cost can be made.

1.14 Workforce (Question 20)

Clinical coders and clinical documentation specialists

It is recognised that the clinical coding workforce is ageing, and concern was expressed that a change to ICD-11 would 'tip some clinical coders over into retirement'.

There was strong feedback from some of the stakeholders to the effect that clinical coding will be automated to a large extent within the next 5 years or so, possibly before ICD-11 might be implemented. These stakeholders estimate that up to 80% of the clinical coding will be completed this way with the clinical coder simply validating the code assignments. The other 20% will consist of complex cases that will need to be fully coded by a clinical coder. These comments provide a counter balance to concerns about clinical coder shortages.

Nevertheless, there is an opinion that clinical coders have an important skill set that should be nurtured into new roles.

Clinical documentation specialists will be needed to ensure that the documentation in the medical record is adequate to support automated clinical coding.

Regardless of what this workforce looks like, if a decision is taken to transition to ICD-11, extensive education will need to be undertaken. Studies will also have to be undertaken to determine the potential loss of productivity during transition to ICD-11 and to determine if a return to existing productivity levels is possible. Given the potentially long code strings that will be assigned in clustering mechanisms, this may not be possible.

A warning was issued that the current clinical coding workforce could represent a barrier to ICD-11 implementation. This stakeholder stated that the number of codes matters less and less and the approach to coding will be very different to what it is now. This is potentially a more important change than the changes in the codeset.

IT professionals and data scientists

It is also recognised that there is a shortage of skilled IT professionals who can work with health systems. Given the database and electronically enabled nature of ICD-11 this problem may well become a critical issue.

Data analysts and other workforce

Education packages for those who deal with health data in other capacities will be needed to assist in analysis and reporting functions. It is generally accepted that not enough documentation currently exists to support a transition to ICD-11.

1.15 Other issues raised (Questions 21 and 22)

Several stakeholders raised the private sector as a potential issue, suggesting that representatives be included in the consultations. It was suggested that it is more difficult for the private sector to manage a change such as a move to ICD-11 and they will need to be kept informed and supported to update their systems in line with the public sector. Clinical coders work across both sectors and it would be preferable if they were using the same classification in each. Problems may also exist where data for private patients treated in public hospitals needs to be reported, potentially using a different classification. Consultation with vendors who provide health funds claiming services was suggested.

Acknowledgments

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Abbreviations


ABS	Australian Bureau of Statistics
ACC	Australian Collaborating Centre
ACHI	Australian Classification of Health Interventions
ACS	Australian Coding Standards
AHCAC	Australian Health Classifications Advisory Committee
AHMAC	Australian Health Ministers' Advisory Council
AIHW	Australian Institute of Health and Welfare
DRGs	Diagnosis Related Groups
ED	Emergency Department
EMR	Electronic Medical Record
ICD-9-CM	International Statistical Classification of Diseases and Related Health Problems 9 th Revision, Clinical Modification
ICD-10	International Statistical Classification of Diseases and Related Health Problems 10 th Revision
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems 10 th Revision, Australian Modification
ICD-11	International Statistical Classification of Diseases and Related Health Problems 11 th Revision
ICF	International Classification of Functioning, Disability and Health
ICHI	International Classification of Health Interventions
MMS	Mortality and Morbidity Statistics
PAS	Patient Administration System
SWOT	Strength, weakness, opportunity, threat
WHO	World Health Organization
WHO-FIC	World Health Organization, Family of International Classifications

References

WHO (World Health Organization) 2019. Classifications: Classification of Diseases (ICD). Geneva: WHO. Viewed 1 November 2019, <https://www.who.int/classifications/icd/en/>.

List of tables

Table A1: List of stakeholders 13



In May 2019, the World Health Assembly adopted ICD-11 for implementation by Member States from 1 January 2022. Australia has not made a decision about whether ICD-11 will be implemented to replace ICD-10 and ICD-10-AM. The AIHW undertook a national consultation regarding ICD-11 and its potential implementation, with a wide range of stakeholders in early 2019 which revealed a body of work that could be undertaken to inform decisions on whether, when and how to implement ICD-11 in Australia.

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