Independent Hospital Pricing Authority

Development of the admitted care classifications

Public consultation

May 2021

IHPA

Development of the admitted care classifications – Public consultation – May 2021

Contents

Glossary

ABF	Activity based funding
ACHI	Australian Classification of Health Interventions
ACS	Australian Coding Standards
ADA	Australian Dental Association
ADRG	Adjacent Diagnosis Related Group
AR-DRG	Australian Refined Diagnosis Related Groups
CAC	Clinical Advisory Committee
CCAG	Classifications Clinical Advisory Group
DCL	Diagnosis Complexity Level
DRG	Diagnosis Related Group
DTG	Diagnosis Related Groups (DRG) Technical Group
ECC Model	Episode Clinical Complexity Model
ECL	Electronic code list
GI	General Intervention
ICD-10	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
ICD-11	International Classification of Diseases, Eleventh Revision
ICD-O-3.2	International Classification of Diseases for Oncology, Third Edition, Second Revision
IHPA	Independent Hospital Pricing Authority
ITG	International Classification of Diseases (ICD) Technical Group
JAC	Jurisdictional Advisory Committee
MBS	Medicare Benefits Schedule
MDC	Major Diagnostic Category
NEP	National Efficient Price
Pricing Authority	IHPA's board
SAC	Stakeholder Advisory Committee
TAC	Technical Advisory Committee
WHO	World Health Organization

1 Introduction

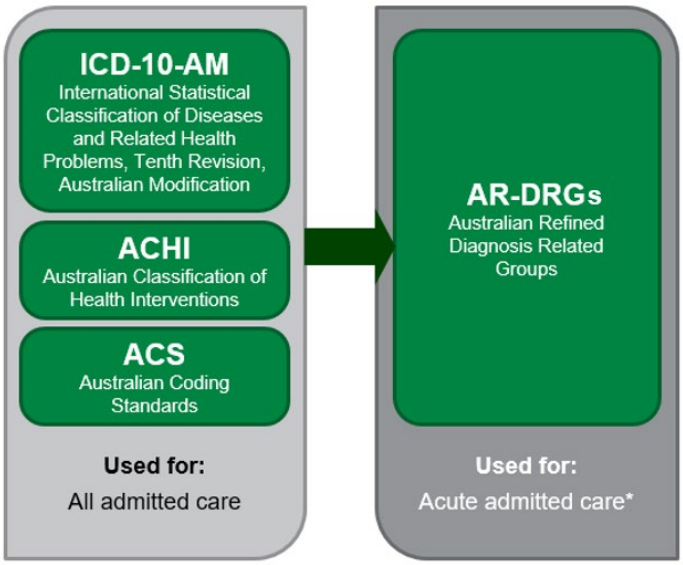
1.1 Admitted care classification systems

The Independent Hospital Pricing Authority (IHPA) is responsible for the development of the classification systems that are used in public and private hospitals to classify admitted episodes of care:

- International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM)
- Australian Classification of Health Interventions (ACHI)
- Australian Coding Standards (ACS)
- Australian Refined Diagnosis Related Groups (AR-DRG).

These classifications are interrelated but have different use cases as shown in **Figure 1**.

Figure 1: ICD-10-AM/ACHI/ACS is used for admitted patient care and underpins AR-DRGs.



*AR-DRGs used for acute care, newborn care and mental health care.

The ICD-10-AM is based on the World Health Organization's (WHO) International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) and is used to classify diseases and other health related problems, while the ACHI classifies procedures and interventions and was originally based on the Medicare Benefits Scheme (MBS).

The ACS are a set of instructions that are applied in assigning ICD-10-AM and ACHI codes to promote consistency in the classification of admitted episodes of care. Collectively this classification system is known as ICD-10-AM/ACHI/ACS, capturing clinical activity for admitted patient care for a number of purposes including:

- identifying patterns and disease trends
- clinical research and management
- research into the quality of care and patient safety.

The AR-DRG classification uses ICD-10-AM/ACHI/ACS coded data along with other routinely collected data to classify episodes of admitted acute care in public and private hospitals across Australia. AR-DRGs provide a clinically meaningful way of relating the number and types of acute admitted patients to the resources required by the hospital in that treatment.

AR-DRGs are used for a number of purposes, including:

- benchmarking
- epidemiology
- facilitation of payment of services in the private health sector
- health service planning
- performance management.

AR-DRGs capture acute admitted activity and are used in calculating the National Efficient Price (NEP) for public hospital activity based funding (ABF) arrangements. The most recent version, AR-DRG Version 10.0 (V10.0), was released in July 2019 and has been used for pricing under national ABF arrangements since 1 July 2020.

1.1.1 Review of the classification development cycle and processes

In August 2019, IHPA commissioned a review to evaluate the end-to-end processes of the development cycle for the acute care classifications. The key findings of this review have since been published in IHPA's *Consultation and review of the AR-DRG and ICD-10-AM/ACHI/ACS classification systems* and feedback was obtained from the key clinical and technical groups involved in the development of the classifications along with other jurisdictional representatives and stakeholders who use the classifications.

The review identified that while the classification development cycle was generally functioning adequately, it highlighted four key opportunities for improvement that would provide the most benefit to the health care system and stakeholders that use the classifications:

- extending the development cycle timing
- embedding a principles-based approach to classification development
- streamlining clinical and technical input to the classifications
- enhancing education materials and other support for implementation.

In response to the opportunities identified in the review, IHPA has since:

- extended the development cycle from two to three years to balance currency against the need for stability and to reduce the burden of implementation for stakeholders
- published the *Governance framework for the development of the admitted care classifications* that outlines the principles used to guide the classification development cycle to ensure the classifications are responsive to the needs of the Australian healthcare system
- explored options to enhance education for the next edition/version of the admitted care classification by developing an engaging, interactive and responsive educational program that has the broadest reach and principally supports the needs of the health information workforce and other users of the classifications.

2 Work programs for the admitted care classifications

In September 2019, IHPA drafted work programs outlining development priorities for the Twelfth Edition of ICD-10-AM/ACHI/ACS and V11.0 of the AR-DRG classification.

Stakeholder views on priorities were sought and informed the work programs and included:

- issues held over from previous editions of ICD-10-AM/ACHI/ACS and AR-DRG V10.0 development
- areas identified through public and stakeholder submissions
- feedback received from stakeholders on consultations to IHPA's annual *Pricing Framework for Australian Public Hospital Services*
- areas referred from ICD-10-AM/ACHI/ACS to AR-DRG classification development and vice versa.

The works programs were reviewed by IHPA's advisory committees and a list of priorities for ICD-10-AM/ACHI/ACS Twelfth Edition and AR-DRG V11.0 were finalised.

2.1 Clinical and technical advisory committees for the admitted care classifications

A number of clinical and technical advisory groups are in place to provide advice to IHPA on the development of the admitted care classifications and to ensure extensive consultation on proposed updates.

2.1.1 Classifications Clinical Advisory Group

The Classifications Clinical Advisory Group (CCAG) provides expert clinical advice on development proposals across the admitted care classifications.

CCAG is composed of clinicians with medical, surgical, emergency, nursing and allied health backgrounds, providing advice that facilitates broad canvassing of clinicians to ensure that there is likely to be general acceptance of the developed proposals.

2.1.2 International Classification of Diseases (ICD) Technical Group

The ICD Technical Group (ITG) provides expert classification advice and technical input on ICD-10-AM/ACHI/ACS development.

ITG includes representatives from state and territory health departments, the Commonwealth, Australian Government committees, private hospitals, professional organisations and government agencies such as the Australian Commission on Safety and Quality in Health Care (the Commission).

2.1.3 Diagnosis Related Groups (DRG) Technical Group

The DRG Technical Group (DTG) provides technical input on AR-DRG development.

DTG includes representatives from state and territory health departments, the Commonwealth, Australian Government committees, private hospitals and private health insurers.

2.1.4 Other advisory committees

Consultation on updates to the ICD-10-AM/ACHI/ACS classification system also occurs through IHPA's Clinical Advisory Committee (CAC), Jurisdictional Advisory Committee (JAC), Technical Advisory Committee (TAC) and Stakeholder Advisory Committee (SAC).

2.2 Scope and purpose of public consultation

In addition to consultation through the clinical and technical advisory groups, IHPA is undertaking a public consultation on major updates proposed for ICD-10-AM/ACHI/ACS Twelfth Edition and AR-DRG V11.0 to ensure the broadest possible consultation across the public and private health sectors.

Submissions should be emailed to IHPA Secretariat at submissions.ihpa@ihpa.gov.au.

Submissions close at 5pm AEST on 22 June 2021.

All submissions will be published on IHPA's website unless respondents specifically identify sections that they believe should be kept confidential due to commercial or other reasons.

This document assumes some knowledge of ICD-10-AM/ACHI/ACS and AR-DRG development. IHPA recognises the importance of engaging a broader audience in this consultation process. Should your organisation require further resources to assist in explaining the ICD-10-AM/ACHI/ACS and/or AR-DRG development process, please contact IHPA at enquiries.ihpa@health.gov.au.

3 ICD-10-AM/ACHI/ACS Twelfth Edition Refinements

ICD-10-AM is an Australian Modification of the World Health Organization's (WHO) International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10). The morphology of neoplasms in ICD-10-AM are also aligned with WHO's International Classification of Diseases for Oncology (ICD-O).

ACHI is based on the Medicare Benefits Schedule (MBS) and expanded to cover interventions not included within the MBS. While, the dental services chapter in ACHI is based on the Australian Dental Association's (ADA) publication *The Australian Schedule of Dental Services and Glossary*. **Table 1** provides a summary of updates from other classifications incorporated for Twelfth Edition.

Table 1: Other classifications that have informed updates for ICD-10-AM/ACHI/ACS Twelfth Edition.

Product	Version information
ICD-10	Final updates from 2017, 2019 Emergency release updates for 2020 *COVID-19 updates*
ICD-O	Version 3.2
ADA	No further updates published since ACHI Eleventh Edition
MBS	Updates between December 2017 to June 2020

A list of all new codes proposed for ICD-10-AM and ACHI Twelfth Edition (**Appendix A**) is available as an Excel spreadsheet on the IHPA website.

3.1 ICD-10-AM updates proposed for Twelfth Edition

3.1.1 ICD-10 updates

The final updates to the WHO's ICD-10 were approved at the annual WHO Family of International Classifications (FIC) (WHO-FIC) network meeting in Mexico City 2017.

The main changes include new terminology in the area of:

- upper motor neuron facial paralysis
- respiratory infection
- victim of cataclysmic storm
- victim of flood
- Zika virus disease.

Change of classification for:

- Charcot arthropathy
- complex regional pain syndrome
- irritable bowel syndrome
- jaundice.

3.1.2 Morphology code updates

To incorporate the newest version of ICD-O-3, ICD-O-3.2, a large number of morphology codes have been created, amended or updated for ICD-10-AM Twelfth Edition for clinical currency. Behaviour codes have also been created for consistency with previous editions of ICD-10-AM.

IHPA sought clinical confirmation regarding the proposed morphology code updates from Cancer Australia, who supported the changes for Twelfth Edition.

3.1.3 COVID-19 related updates

In 2020-21, the WHO released updates to ICD-10 that included several emergency use codes for classifying activity related to COVID-19. Consequently, the following emergency use codes were activated in Australia through national coding advice (Coding Rules):

- U06.0 *Emergency use of U06.0 [COVID-19, ruled out]*
- U07.1 *Emergency use of U07.1 [COVID-19, virus identified]*
- U07.2 *Emergency use of U07.2 [COVID-19, virus not identified]*
- U07.3 *Emergency use of U07.3 [Personal history of COVID-19]*
- U07.4 *Emergency use of U07.4 [Post COVID-19 condition]*
- U07.5 *Emergency use of U07.5 [Multisystem inflammatory syndrome associated with COVID-19]*
- U07.7 *Emergency use of U07.7 [COVID-19 vaccines causing adverse effects in therapeutic use]*.

Further information regarding these codes are also provided on IHPA's How to classify COVID-19 webpage.

Due to the evolving nature of the pandemic, and the fact that WHO has yet to make decisions on where to classify COVID-19 within the main chapters of ICD-11, it is proposed that they be retained as emergency use codes in ICD-10-AM for Twelfth Edition but with the code titles updated. They will, however, be incorporated within AR-DRG V11.0 to ensure appropriate grouping.

The exception to this is a proposal to incorporate U06.0 *Emergency use of U06.0 [COVID 19, ruled out]* more appropriately within category Z03 *Medical observation and evaluation for suspected conditions and diseases, ruled out*. U06.0 was implemented in Australia only and is not an emergency use code issued by the WHO.

In addition, codes for both COVID-19 testing and immunisation are proposed for incorporation within ACHI.

An ACS to provide advice for the classification of COVID-19 has also been developed.

1. Are there any additional requirements in coded activity data regarding the classification of COVID-19 that should be prioritised for Twelfth Edition?

3.1.4 Sepsis updates

The most recent update for the classification of sepsis in ICD-10-AM occurred in Ninth Edition (implemented 1 July 2015) and reflected the recommendations of the International Sepsis Definitions Conference 2001 (known as Sepsis-2).

Advances have since been made in the pathobiology, management and epidemiology of sepsis. The Third International Consensus Definitions for Sepsis and Septic Shock provided updated definitions and clinical criteria for sepsis and septic shock (known as Sepsis-3).

To classify sepsis using Twelfth Edition guidelines, it is proposed to capture:

- the type of sepsis including microbiological cause of infection, for example, streptococcal sepsis
- the pathological source of sepsis, for example, pneumonia
- any evidence of acute organ failure, for example, acute respiratory failure.

The Sepsis-3 definition was used by the WHO to guide the development of the relevant sections of ICD-11; however, the ability to explicitly link together codes that are related to a single condition (or cluster code) does not exist in Australia and therefore this approach could not be directly incorporated into ICD-10-AM. Instead, there was a need to expand the code set for sepsis to link the causative microbiological agent with the event of sepsis.

2. Is there support to align the coding practice of sepsis with the Sepsis-3 definition?

3.1.5 Expanding the number of ICD-10-AM codes for antimicrobial resistance

IHPA has expanded the number and detail of the codes relating to antimicrobial resistance (AMR) to align with the data reported for the Antimicrobial Use and Resistance in Australia (AURA) Surveillance System that is managed by the Australian Commission on Safety and Quality in Health Care (the Commission). These expanded codes also align with the concepts of AMR in ICD-11.

Forty-two new codes for AMR are proposed in Twelfth Edition to help demonstrate where AMR is relevant to an infection that is treated in an episode of care. The instruction for assigning AMR codes is not proposed to be changed but this update allows for greater specificity in the capture of AMR in an infection that meets the criteria in ACS 0001 *Principal diagnosis* or ACS 0002 *Additional diagnoses*.

There are 22 new four-character categories of AMR proposed in ICD-10-AM Twelfth Edition:

- Z14.0- *Resistance to narrow spectrum penicillins*
- Z14.1- *Resistance to extended spectrum penicillins*
- Z14.2- *Resistance to cephalosporins*
- Z14.3- *Resistance to carbapenems, penems and monobactams*
- Z14.4 *Resistance to penicillin-based antibiotic with beta lactamase inhibitor*
- Z14.8 *Resistance to other beta-lactam antibiotics*
- Z14.9 *Resistance to beta lactam antibiotic, unspecified*
- Z15.0 *Resistance to sulphonamides and trimethoprim*
- Z15.1 *Resistance to macrolides, lincosamides and streptogramins*
- Z15.2 *Resistance to aminoglycosides*

- Z15.3- *Resistance to quinolones*
- Z15.4- *Resistance to glycopeptides*
- Z15.7 *Resistance to multiple antibiotics*
- Z15.8- *Resistance to other specified antibiotic*
- Z15.9 *Resistance to antibiotic, unspecified*
- Z16.0 *Resistance to antimycotics*
- Z16.1 *Resistance to antimycobacterials*
- Z16.2 *Resistance to antivirals*
- Z16.3- *Resistance to antiparasitic drugs*
- Z16.7 *Resistance to multiple antimicrobials*
- Z16.8 *Resistance to other specified antimicrobials*
- Z16.9 *Resistance to antimicrobial, unspecified*.

3.1.6 New diseases (or other health problems/statuses) not uniquely classified in ICD-10-AM

A number of new codes have been proposed in ICD-10-AM by applying the newly developed prioritisation principles detailed in the governance framework.

Addressing significant gaps in the classification is considered a high priority, especially with the move to a longer development cycle. Public submissions were reviewed and grouped to address gaps in ICD-10-AM.

In progressing this update IHPA reviewed international classifications, including ICD-11, and where appropriate sought advice from CCAG members to incorporate new/revised codes for:

- limbal stem cell deficiency
- telangiectasia of the colon and stomach
- familial Mediterranean fever
- cryptogenic organising pneumonitis
- spontaneous bacterial peritonitis
- behavioural and psychological symptoms of dementia
- lipoedema
- protracted bacterial bronchitis
- fetal valproate spectrum disorder
- cytokine release syndrome.

CCAG members also reviewed a number of other submissions that have not been recommended for inclusion in ICD-10-AM Twelfth Edition as they were either already classifiable or did not provide sufficient evidence to be classified to a unique code in ICD-10-AM. The following are not proposed to have unique codes in Twelfth Edition:

- neutropenic fever
- reactive airways disease
- personal history of gender reassignment surgery.

3.1.7 Updates to musculoskeletal diseases

A review of diseases related to the musculoskeletal system was undertaken, informed by multiple coding queries and public submissions resulting in the addition and revision of index entries for the folllowing:

- brachialgia
- insufficiency fracture
- nontraumatic haematoma
- os acromiale
- erosion of knee (including grades 1 to 4)
- migratory arthritis not due to rheumatic fever
- admission for osseointegration limb implants
- slipped intervertebral disc
- ligament disruption of knee
- meniscus or ligament tear of knee
- amputation stump complications.

A number of enhancements were also made to the ACHI Alphabetic Index and Tabular List, facilitating removal of nine of the ACS relating to musculoskeletal diseases and interventions (see 3.3.4).

3.1.8 Stigmatising legacy terminology

Stakeholder feedback from the Twelfth Edition work program identified updates to legacy terminology in ICD-10-AM as a high priority. This included stigmatising terminology in Chapter 5 *Mental and behavioural disorders* of the ICD-10-AM Tabular List and eponyms associated with perpetrators of crimes against humanity.

Outdated and stigmatising terms that were identified by CCAG and ITG have been retained within the ICD-10-AM Alphabetic Index to ensure consistent classification but have been removed from code titles to ensure that reported data coded using the legacy terms is not overt.

IHPA has worked with a subgroup of clinicians from the Mental Health Working Group and the Royal Australian and New Zealand College of Psychiatrists to ensure the changes to the classification are relevant and meaningful to the Australian context.

Stigmatising terminology has been replaced for the following concepts:

- intellectual development
- gender incongruence
- paraphilic disorders
- autism spectrum disorder.

In addition to the focus on concepts located in Chapter 5 of ICD-10-AM, stakeholders identified diseases referred to by an eponym rather than a scientific name. In consultation with ITG and CCAG IHPA created an ICD-10-AM development principle to ensure eponyms are not used as code titles, where possible. Consequently, a number of eponyms have been replaced with their scientific name to ensure the classification is clinically relevant and does not promote the unethical actions of those who had a disease named after them.

3.2 ACHI updates for Twelfth Edition

3.2.1 MBS updates between December 2017 to June 2020

Updates to ACHI Twelfth Edition include:

- new codes for nine new MBS item numbers relating to eye interventions, peripheral nerve stimulation, removal of mesh grafts and sleep studies
- refinements to codes for vagus nerve stimulation
- extensive revision of codes for spinal surgery services.

Following recommendations from the MBS Review Taskforce, the MBS item numbers for spinal surgery have been extensively revised to reflect contemporary practice of spinal surgery in Australia. More than half of the existing spinal surgery items have been replaced with new items. To maintain alignment with these revisions, IHPA has comprehensively updated the spinal surgery codes for ACHI Twelfth Edition.

In addition, the following concepts have been incorporated into existing ACHI codes:

- cyanoacrylate embolisation
- excision of phaeochromocytoma and extraadrenal paraganglioma.

3.2.2 Micro-invasive glaucoma surgery

The classification of micro-invasive glaucoma surgery (MIGS) as a standalone intervention was raised as an issue that has been addressed for Twelfth Edition. The proposed update facilitates assignment of this intervention on its own and also aligns with a recent MBS update.

3.2.3 Updates to musculoskeletal interventions

A review of interventions related to the musculoskeletal system was undertaken, informed by multiple coding queries and public submissions and MBS updates relating to musculoskeletal surgery held over from Eleventh Edition, resulting in the addition of a number of new codes and index entries for:

- arthroscopic debridement, osteoplasty, chondroplasty, stabilisation, bursectomy and reconstruction of the relevant joints to allow classification of both open and arthroscopic approaches
- removal of joint prosthesis without replacement for humerus, radius, hand, finger, foot or toe
- chondroplasty/arthroscopic chondroplasty with multiple drilling or implant, insertion and removal of bone spacer or joint spacer when a cement spacer is inserted or removed as an independent procedure
- notchplasty/arthroscopic notchplasty performed alone
- closed reduction of acetabulum fracture without internal fixation.

3.2.4 Updates relating to new health technology

A number of submissions have been received to incorporate new health technology in ACHI, including submissions through IHPA's *Impact of New Health Technology Framework.* Submissions that identified gaps in ACHI were also prioritised. Consequently, a number of new or revised codes are proposed for ACHI Twelfth Edition:

- engineered cell and gene therapies, including CAR T-cell therapy (see 3.2.4.1)

- stem cell transplants (see 3.2.4.2)
- leadless (intracardiac) pacemakers
- transperineal biopsy of the prostate
- electrohydraulic lithotripsy (EHL)
- whole lung lavage
- intravascular ultrasound (IVUS)
- resection of pyriform fossa tumour
- arytenoidopexy
- transcatheter ventricular ablation
- non-bronchoscopic broncho-aleveolar lavage (BAL)
- meso-portal (REX) shunt
- intestine transplant.

3. Most interventions in the admitted care setting are able to be classified to a code even though sometimes the code might not be specific. Are there other new interventions that should be uniquely classifiable in ACHI?

3.2.4.1 Engineered cell and gene therapies

Chimeric antigen receptor (CAR), CAR T-cell therapy (or CAR-T therapy), is a new form of engineered cell therapy that uses specially altered T-cells to directly and precisely target cancer cells. Currently this therapy is classified to a code for administration of T-cells, however, this is also grouped with non-engineered therapies that makes it difficult to identify in coded activity data. The emerging use of gene therapy was also identified through IHPA's *Impact of New Health Technology Framework*.

In consultation with the Therapeutic Goods Administration, IHPA proposes the following codes to identify genetically engineered cell and gene therapy:

- new block for **Cell therapies** with new codes to classify allogeneic and autologous genetically engineered cell therapy
- new block for **Gene therapies** with a new code to classify gene therapy, not elsewhere classified.

4. Are there other concepts or additional terminology that should be incorporated for engineered cell and gene therapies to ensure that current and emerging new health technology can be accurately classified?

3.2.4.2 Stem cell transplants

In September 2017, a public submission was received seeking improvements to the classification of bone marrow and stem cell transplantation. While ACHI can currently identify matched related donors, it does not distinguish all donor sources and does not identify the type of stem cell being transplanted.

ACHI codes are proposed to classify the following donor types:

- autologous donor

- allogeneic, matched related donor (MRD)
- allogeneic, matched unrelated donor (MUD)
- allogeneic, mismatched related donor (MMRD)
- allogeneic, mismatched unrelated donor (MMUD).

In addition, the following sources of transplanted stem cells will be classifiable:

- bone marrow
- cord blood
- peripheral blood.

Codes to separately identify in vitro processing (IVP) have also been included for use where documentation indicates the transplanted cells have undergone IVP.

Disease codes that capture failure and rejection of bone marrow and stem cell transplantations have also been enhanced.

3.2.5 Placeholder codes in ACHI

The end-to-end review identified a lack of agility in the classifications being able to keep pace with new health technology, particularly with a move to a three-year development cycle. Creating placeholder codes in ACHI has been proposed to facilitate the activation of codes for new and emerging health technologies mid-edition.

Other health classifications have utilised the concept of a placeholder for provisional use. These codes are incorporated into electronic systems at the point of implementation of the new edition and are activated when required by the release of a Coding Rule.

A new chapter has been proposed in ACHI to facilitate the use of placeholder codes for new and emerging technology.

A policy surrounding the implementation of these placeholder codes is currently under development.

3.2.6 Identification of consultation liaison psychiatry

Consultation liaison psychiatry (CLP) is a medical subspecialty focusing on the practice of psychiatry in collaboration with a range of other health professionals, usually in a hospital setting and typically outside designated mental health units.

The CLP team focus on psychiatric complications of medical illness and may consist of psychiatrists, psychologists, psychiatric nurses, and social workers. For health services, CLP services assist other medical officers in the management of common mental health problems in their patients.

A new code has been added to the ACHI block **[1824]** *Other assessment, consultation, interview, examination or evaluation* to facilitate data capture where an admitted patient is seen by the CLP service during the course of their care. This will act as a flag for episodes where this service is being provided to patients and facilitate accurate counting and costing.

5. What are common terms used in clinical documentation to identify the consultation liaison psychiatry (CLP) service?

6. Is there a standard definition used to describe consultation liaison psychiatry (CLP) services?

3.3 ACS updates

3.3.1 Clarification of ACS 0002 *Additional diagnoses*

IHPA received multiple requests from stakeholders with regard to the expanded guidelines implemented within ACS 0002 *Additional diagnoses* in Eleventh Edition (implemented 1 July 2019). The revisions aimed to clarify the criteria for assigning an additional diagnosis in terms of what is significant to the episode of care. However, the length and complexity of the revised standard appear to create difficulty for clinical coders in interpreting some of the guidelines. To address the most immediate issues, errata was released and implemented on 1 January 2020.

Further clarification of the standard (and the January 2020 errata) was supported by ITG to ensure it provided clear instructions for clinical coders, addressed ambiguity and promoted consistency without changing the intent of the standard.

For Twelfth Edition, IHPA has proposed the following updates:

- simplified and clarified the language
- enhanced heading and section structures to create clearer divisions and flow of guidelines
- rationalised the number of examples within the standard
- updated the rationale for code assignment in each example to clearly demonstrate the ACS 0002 criteria for assignment.

There was also an additional request to provide clearer instruction regarding the capture of socioeconomic factors in an episode of admitted care. Twelfth Edition provides enhanced guidance for the coding of these factors in ACS 0002.

IHPA is continuing to work with ITG to clarify and pilot the revised ACS 0002 for Twelfth Edition.

7. What is the most significant part of ACS 0002 *Additional diagnoses*, requiring clarification to promote consistency of application without changing the intent of the standard?

3.3.2 Clarification of ACS 0010 *Clinical documentation and abstraction guidelines*

ACS 0010 *Clinical documentation and general abstraction guidelines* provides guidance for clinical coders as to the specific areas of the health care record that can be used to inform code assignment. Eleventh Edition ACS 0010 was updated to address the increasing breadth of information that was accessible with the increasing uptake of electronic health records.

Elements that were introduced for Eleventh Edition solved some issues but highlighted others that required publication of national coding advice shortly after its release.

The refinement of ACS 0010 for Twelfth Edition aims to clarify the documentation that can be used to assign mandatory conditions in situations where a patient may have multiple episodes of care within the same hospital stay.

IHPA has worked with ITG members on a plain language approach to refine the documentation query guidelines so they are succinct but also help clinical coders clarify ambiguous documentation. These guidelines have also been separated from the ACS and incorporated more appropriately as an appendix.

Stakeholders also expressed uncertainty as to the clinician documentation that can be used to inform code assignment for diagnoses and so additional guidelines have been proposed to make this clearer.

What can be considered in or out of a clinician's scope of practice to inform the classification of certain conditions has also been questioned. Providing a prescriptive definition for scope of practice for classification purposes, however, is limited by variation across jurisdictions, especially for some disciplines where there is no national credentialing. IHPA will therefore, focus on ensuring examples demonstrate clearly the application of scope of practice to inform code assignment.

3.3.3 ACS 0044 *Pharmacotherapy*

The treatment of neoplasms that relate to pharmacotherapy are outlined in ACS 0044 *Pharmacotherapy*. Changes to this standard in Eleventh Edition aligned the term of chemotherapy with the broader term of pharmacotherapy. This led to unintended changes for the coding of all drug-related treatments that were only meant for cancer-related drug treatments.

The wording and intent of the standard have been realigned to ensure accurate identification of interventions that aim to treat cancer and cancer-related conditions. Pharmacotherapy that is used for treatment-related conditions will be classified according to the condition and type of pharmacotherapy used rather than combining these episodes with care aimed at specifically treating the neoplasm.

The update to ACS 0044 for Twelfth Edition will also include updated classification advice on the use of prophylactic pharmacotherapy that will be distinguished from regular pharmacotherapy for neoplasms.

3.3.4 Standardisation of structure and format of the ACS

The ACS are the coding guidelines applicable to admitted care, and used in conjunction with ICD-10-AM and ACHI. The level of detail in the ACS reflects the assumption that users of the document have had training in abstracting relevant information from health care records and in the use of ICD-10-AM and ACHI.

An overall aim of the review is to implement a concise, standard structure with consistent formatting and language to ensure unambiguous and consistent guidelines across the ACS.

The first stage of the review identified ACS for potential deletion by incorporating content within the ICD-10-AM and ACHI Tabular Lists and Alphabetic Indices. For example, ACS 2118 *Exposure to tobacco smoke* contains no additional classification instructions for clinical coders and the classification rubrics such as the excludes notes under the code Z58.7 *Exposure to tobacco smoke* already direct coders appropriately. Therefore, this ACS is proposed for deletion.

From the standardisation work and other development tasks, the following ACS are proposed for deletion in Twelfth Edition:

- ACS 0109 *Neutropenia*
- ACS 0241 *Malignant neoplasm of lip*
- ACS 0402 *Cystic fibrosis*
- ACS 0521 *Admitted patient without sign of mental illness*
- ACS 0531 *Intellectual impairment/intellectual disability*

- ACS 0533 *Electroconvulsive therapy (ECT)*
- ACS 0605 *Stroke extension*
- ACS 0627 *Mitochondrial disorders*
- ACS 0630 *Quadriplegic hand surgery*
- ACS 0631 *Benign shuddering attacks*
- ACS 0635 *Sleep apnoea and related disorders*
- ACS 0724 *Corneal calcium chelation*
- ACS 0733 *Haemodilution*
- ACS 0742 *Orbital and periorbital cellulitis*
- ACS 0804 *Tonsillitis*
- ACS 0807 *Functional endoscopic sinus surgery (FESS)*
- ACS 0809 *Intraoral osseointegrated implants*
- ACS 0920 *Acute pulmonary oedema*
- ACS 0943 *Thrombolytic therapy*
- ACS 1002 *Asthma*
- ACS 1004 *Pneumonia*
- ACS 1120 *Dehydration with gastroenteritis*
- ACS 1122 *Helicobacter pylori*
- ACS 1216 *Craniofacial surgery*
- ACS 1217 *Repair of wound of skin and subcutaneous tissue*
- ACS 1307 *Disc disorders with myelopathy*
- ACS 1308 *Disc lesion*
- ACS 1311 *Exostosis*
- ACS 1316 *Cement spacer/beads*
- ACS 1319 *Meniscus/ligament tear of knee, NOS*
- ACS 1329 *Silastic button arthroplasty*
- ACS 1330 *Slipped disc*
- ACS 1343 *Erosion of knee*
- ACS 1348 *Spinal fusion*
- ACS 1352 *Juvenile arthritis*
- ACS 1429 *Loin pain/haematuria syndrome*
- ACS 1433 *Bladder retraining*
- ACS 1434 *Ovarian cysts*
- ACS 1437 *Infertility and in vitro fertilisation (IVF)*
- ACS 1805 *Acopia*

- ACS 1807 *Acute and chronic pain*
- ACS 1810 *Skin tear and frail skin*
- ACS 1901 *Poisoning*
- ACS 1910 *Skin loss*
- ACS 2118 *Exposure to tobacco smoke*.

The code titles of four ACS have also been amended:

- ACS 0011 *Intervention cancelled or not performed*
- ACS 0023 *Minimally invasive interventions*
- ACS 0234 *Neoplasms of contiguous or overlapping sites, or with localised spread*
- ACS 0303 *Anticoagulant use and abnormal coagulation profile*.

The review of the ACS will continue after the publication of Twelfth Edition and will include applying a standardised template for the remaining ACS.

3.4 Updates in Twelfth Edition resulting from AR-DRG V11.0 development

Some development proposals for AR-DRG V11.0 have led to updates to ICD-10-AM and ACHI. These updates have emanated from a review of the potential use of gestational age, a review of sex edits and a review of nail and nail bed procedures for hand and foot in the AR-DRG classification. Please refer to sections 4.1.6, 4.1.7 and 4.1.8 for details of these development proposals and the consequent updates proposed for ICD-10-AM and ACHI for Twelfth Edition.

8. Do you have any additional feedback on the proposed changes for ICD-10-AM/ACHI/ACS Twelfth Edition?

4 AR-DRG V11.0 Refinements

4.1 AR-DRG updates proposed for V11.0

To maintain the clinical currency and robustness of the AR-DRG classification, each new version includes a standard set of minimum refinements that are key to achieving this goal. For AR-DRG V11.0 this includes:

- reviewing codes in scope for contributing to complexity (see 4.1.1.1)
- reviewing episodes that group to Adjacent Diagnosis Related Group (ADRG) 801 *General interventions (GIs) Unrelated to Principal Diagnosis* (see 4.1.2)
- revising the intervention hierarchy using up to date activity and cost data (see 4.3.1)
- refining the complexity scoring system using up to date activity and cost data (see 4.3.2)
- reviewing the splitting of ADRGs into end classes that reflect different levels of complexity (see 4.3.3)
- integrating changes from the Twelfth Edition of ICD-10-AM and ACHI, including new and deleted codes and changes in relation to unacceptable principal diagnosis (see 4.3.4).

Other updates are informed by stakeholder submissions or development refinements identified by IHPA.

4.1.1 Complexity Model Revision

4.1.1.1 Diagnoses in scope for receiving a Diagnosis Complexity Level

A number of diagnosis codes were excluded from receiving a Diagnosis Complexity Level (DCL) in the Episode Clinical Complexity Model (ECC Model) based on the guiding principles formalised during its initial development in AR-DRG Version 8.0 (V8.0). These guiding principles aimed to characterise the scope of the ECC Model in terms of diagnoses considered relevant for Diagnosis Related Group (DRG) classification purposes.

Clinical determination of exclusions for all diagnosis codes was not possible during the development of AR-DRG V8.0. However, in developing AR-DRG Version 10.0 (V10.0), IHPA refined and expanded the guiding principles for diagnosis exclusion. A comprehensive review of all in-scope codes informed by the new guiding principles was undertaken in consultation with CCAG and the DTG in the ECC Model for V10.0, with 1,511 additional codes excluded from receiving a DCL.

With a move to embedding a standard review process in AR-DRG V11.0 IHPA has developed a method to analyse the assignment of diagnosis codes over time to identify codes for assessment and potential exclusion.

This method identified 50 diagnosis codes warranting further assessment. Assessment of these codes against the principles resulted in nine codes being proposed for exclusion from the complexity model in AR-DRG V11.0, in consultation with clinical advice sought through CCAG, who endorsed the proposed exclusions.

The nine codes proposed for exclusion in AR-DRG V11.0 are provided in **Table 2**.

Table 2: Diagnosis codes proposed for exclusion from the complexity model in AR-DRG V11.0.

ICD-10-AM code	Code description	Rationale for exclusion
D89.8	*Other specified disorders involving the immune mechanism, not elsewhere classified*	This code generally adds context or very broadly describes an underlying autoimmune mechanism of a condition rather than being a condition in its own right. Immunosuppressed status is also classified to this code. Of note, codes in the category where D89.8 is classified are being considered for expansion to incorporate cytokine release syndrome and may impact the recommendation to exclude this code. However, it is currently recommended for exclusion in accordance with the guiding principles for exclusion as this code mostly represents undefined conditions, provides contextual information relating to other conditions or represents an underlying cause of disease.
E53.8	*Deficiency of other specified B group vitamins*	This includes conditions, such as Vitamin B12 and folic acid deficiencies, amongst others. It is also a part-time dagger code (underlying cause code) and so sometimes assigned in combination with a manifestation code. All full-time daggers are excluded from the complexity model. Severe B group vitamin deficiencies may lead to anaemia that is classified elsewhere or it can be a manifestation of other diseases such as Crohn's disease, which is also elsewhere classifiable. Therefore, it is recommended for exclusion based on the guiding principles as it generally represents an underlying cause of disease.
E61.1	*Iron deficiency*	Iron deficiency is recommended for exclusion based on the guiding principles, as on its own it is not significant and often asymptomatic. In severe cases it made lead to iron deficiency anaemia, however, both the deficiency and resultant anaemia generally have underlying causes such as blood loss from gastrointestinal conditions that are classifiable elsewhere.

ICD-10-AM code	Code description	Rationale for exclusion
K56.7	*Ileus, unspecified*	Anecdotally it appears that this code may be assigned postoperatively when it is an indication for the insertion of a nasogastric tube. In such circumstances it is generally considered a minor and expected outcome of surgery, particularly gastrointestinal surgery. Analysis using three years of acute prepared data from 2016–17 to 2018–19 demonstrates that when assigned as an additional diagnosis 96 per cent group to ADRGs within the intervention partition, with the highest percentage in ADRG G02 *Major Small and Large Bowel Interventions*.
M62.50	*Muscle wasting and atrophy, not elsewhere classified, multiple sites*	Deconditioning and sarcopenia are assigned to this code, however, it is generally a manifestation of conditions classifiable elsewhere. Analysis based on three years of acute prepared data from 2016–17 to 2018–19 demonstrated that it is assigned in 6.50 per cent of episodes in the subacute care type and in 0.30 per cent of episodes in the acute care type. AR-DRGs do not currently have a measure of frailty and so it is recommended for exclusion in AR-DRG V11.0 but with a recommendation that it be considered for subacute care in the future.
P22.1	*Transient tachypnoea of newborn (TTN)*	TTN is a common condition seen in newborn babies that usually resolves within the first 24 hours. It may sometimes be observed in a special care nursery and require oxygen. This code is currently recommended for exclusion on the basis that it is a transient and often benign condition. However, advice from specialist neonatologists will be sought prior to making a final decision.

ICD-10-AM code	Code description	Rationale for exclusion
Z06.51	*Resistance to penicillin*	These codes are recommended for exclusion based on the guiding principles that they add context to the infection codes that they are paired with and that the costs associated with the resistant nature of these infections should reside with the infection itself. Note that the proposal to exclude the three codes identified will be extended to incorporate all antimicrobial resistance codes based on the guiding principles for exclusion. Also as this code set is being expanded for ICD-10-AM Twelfth Edition (see 3.1.5), the principles that recommend the exclusion of these codes will apply to the expanded code set.
Z06.52	*Resistance to methicillin*	
Z06.69	*Resistance to other specified antibiotics*	

9. Do you agree with the diagnoses that are proposed for exclusion in AR-DRG V11.0 based on the guiding principles for exclusion? If not please provide evidence that may lead to the recommendation for exclusion being reconsidered (see **Table 2**).

10. Are there other diagnoses not proposed for exclusion that should be added to the exclusion list?

4.1.1.2 Diagnosis Complexity Level precision

DCLs are integers that quantify levels of resource utilisation associated with each diagnosis, relative to the ADRG of the episode. Currently DCLs are derived by defaulting to the three-character level of the ICD-10-AM codes that belong to the same medical ADRG. This level of precision has been adopted to balance against sample variation and stability over time.

However, calculating DCLs at the three-character level does not utilise the differentiation of severity existing at the fourth or fifth character of the ICD-10-AM codes. DCL precision refers to the process of deriving DCLs at the fourth or fifth character level of the ICD-10-AM codes. This process supports assignment of DCLs to a more refined level of granularity where such severity levels exist. Feedback on the AR-DRG V11.0 work program suggested 46 three-character ICD-10-AM code categories as potential candidates for DCL precision.

A clustering methodology was developed to assess whether the 46 code categories were better able to differentiate higher cost episodes from lower cost episodes by utilising the fourth or fifth character. Of these, 11 resulted in clear and logical cluster selections that will be progressed for inclusion in AR-DRG V11.0, that is, by calculating DCLs at the more granular fourth or fifth character. The remaining code categories resulted in clusters that were difficult to interpret or were not progressed due to insufficient sample size or cost differentials. The proposed cost groups for ICD-10-AM codes within these code categories (**Appendix C**) are provided as an Excel spreadsheet on the IHPA website[1].

The code categories proposed to be incorporated in DCL precision for AR-DRG V11.0 are listed below:

- D57 *Sickle-cell disorders*
- E66 *Obesity and overweight*
- F04 *Organic amnesic syndrome, not induced by alcohol and other psychoactive substances*
- I70 *Atherosclerosis*
- I83 *Varicose veins of lower extremities*
- J96 *Respiratory failure, not elsewhere classified*
- K25 *Gastric ulcer*
- K26 *Duodenal ulcer*
- K43 *Ventral hernia*
- N45 *Orchitis and epididymitis*
- P07 *Disorders related to short gestation and low birth weight, not elsewhere classified*.

11. Do you support the proposed ICD-10-AM code categories for DCL precision in AR-DRG V11.0?

12. Do you support the proposed cost groups within the ICD-10-AM code categories (see **Appendix C**) for DCL precision in AR-DRG V11.0?

4.1.2 Review of ADRG 801 *General Interventions (GIs) Unrelated to Principal Diagnosis*

Since 2017, IHPA has received 11 public submissions regarding grouping anomalies in the AR-DRG classification relating to ADRG 801. Seven public submissions requested assessment of scenarios where the combination of a principal diagnosis with a certain intervention code resulted in an episode being grouped to ADRG 801 and four requested a change to the MDC where particular principal diagnoses were assigned.

[1] Please note that ICD-10-AM codes that are not in scope for receiving DCLs in the complexity model (unconditional exclusions) are not included in **Appendix C**. Further, ICD-10-AM codes within the medical ADRGs that have insufficient sample size or insignificant cost differentials are not included in **Appendix C**.

IHPA reviewed the public submissions and confirmed that the scenarios highlighted should group to a more appropriate ADRG where feasible. Potential grouping alternatives were proposed for each scenario. Analysis on cost profile and episode movement was conducted to confirm the appropriateness of the proposed grouping alternatives. The final recommendations are provided in (**Appendix B.1 and B.2**) as an Excel spreadsheet on the IHPA website.

13. Do you support the proposed ADRGs for the General Interventions (GIs) and principal diagnoses outlined in **Appendix B.1 and B.2** on the IHPA website?

4.1.3 Endovascular clot retrieval

Endovascular clot retrieval (ECR), also known as mechanical thrombectomy, involves the delivery of a clot retrieval device via a catheter into the cerebral arteries to remove the obstructing clot and restore blood flow to the brain. It is used in the treatment of acute ischaemic stroke for patients who present within four and half hours of stroke onset and are eligible for intravenous thrombolysis, but also for patients who are ineligible for intravenous thrombolysis (usually because they have presented more than four and half hours after stroke onset).

A submission to the *Consultation paper on the Pricing Framework for Australian public hospital services 2018–19* requested that IHPA further investigate the delivery of ECR and the appropriateness of referring it for classification development. The submission highlighted that there has been a steady increase in the number of ECR interventions delivered since 2014 and projections indicate that this trend is likely to continue.

ECR episodes currently group to ADRG B02 *Cranial Interventions* within Major Diagnostic Category (MDC) 01 *Diseases and Disorders of Nervous System*. Analysis demonstrated that the volume of ECR episodes is increasing in recent years, from 417 episodes in 2015–16 to 1,713 episodes in 2018–19. ECR episodes appear to be less expensive than non-ECR episodes, especially within high complexity DRGs B02A and B02B.

A new ADRG B08 *Endovascular Clot Retrieval* is proposed for ECR episodes within MDC 01 in AR-DRG V11.0. This will prevent the average cost of ADRG B02 being diluted by ECR episodes.

14. Do you support the proposal to create an ADRG specifically for endovascular clot retrieval (ECR) in AR-DRG V11.0?

4.1.4 Transcatheter aortic valve implantation

Aortic stenosis is the obstruction of blood flow across the aortic valve. Surgical aortic valve replacement remains the standard of care, but entails a higher operative risk. For patients who are symptomatic with severe aortic stenosis, and who are deemed to be at high risk for surgical aortic valve replacement or who would otherwise be inoperable, transcatheter aortic valve implantation (TAVI) is the favoured treatment option.

A public submission requested consideration be given to creating a separate DRG for TAVI in the AR-DRG classification as its use is expanding and the cost of the TAVI device (valve plus delivery system) is purportedly more costly than a surgical valve. The submission also noted that an episode of care for a TAVI is of relatively short duration when compared to traditional (open chest) surgery.

TAVI currently groups to the same ADRG as cardiac valve replacement interventions performed using an open approach. While it has always been recognised that the percutaneous nature of TAVI is not consistent with the other valve interventions in this ADRG, it was considered the best fit for resource homogeneity.

IHPA reviewed the classification of percutaneous cardiac valve replacement (PCVR) procedures, including TAVIs in AR-DRG V10.0. Analysis demonstrated that PCVR episodes have grown in recent years, from 1,173 episodes in 2015–16 to 1,770 episodes in 2018–19. The majority of PCVR episodes group to the following three ADRGs within MDC 05 *Diseases and Disorders of the Circulatory System*:

- F03 *Cardiac Valve Interventions W CPB Pump W Invasive Cardiac Investigation*
- F04 *Cardiac Valve Interventions W CPB Pump W/O Invasive Cardiac Investigation*
- F19 *Trans-Vascular Percutaneous Cardiac Interventions*.

Analysis of the cost profiles demonstrated that PCVR episodes within ADRGs F03 and F04 are more expensive than other episodes within the corresponding DRGs, while those within ADRG F19 are relatively consistent with the corresponding DRGs.

To improve clinical coherency and resource homogeneity, it is proposed to remove PCVR procedures from ADRGs F03 and F04 and reassign to ADRG F19. However, as PCVR episodes in ADRGs F03 and F04 appear to be more expensive than those in ADRG F19, the complexity splits within ADRG F19 will be reassessed to remediate any untoward impact in making this change.

During the review, it was also noted that PCVR interventions were inappropriately defined as invasive cardiac interventions in the following ADRGs:

- F05 *Coronary Bypass W Invasive Cardiac Investigation*
- F06 *Coronary Bypass W/O Cardiac Investigation*.

PCVR procedures will be removed from ADRGs F05 and F06 in AR-DRG V11.0 to improve clinical coherency.

The proposed changes relating to PCVR episodes are summarised in **Table 3**.

Table 3: PCVR recommendations to improve clinical coherence.

Recommendation	Interventions reassigned/removed
Remove PCVR interventions from ADRGs F03 and F04 and reassign to ADRG F19	38488-08 **[623]** *Percutaneous replacement of aortic valve with bioprosthesis* 38488-09 **[628]** *Percutaneous replacement of mitral valve with bioprosthesis* 38488-10 **[634]** *Percutaneous replacement of tricuspid valve with bioprosthesis* 38488-11 **[637]** *Percutaneous replacement of pulmonary valve with bioprosthesis*

Recommendation	Interventions reassigned/removed
Remove PCVR interventions from ADRGs F05 and F06 (these are already assigned to ADRG F19)	38270-01 **[622]** *Percutaneous balloon aortic valvuloplasty* 38270-02 **[626]** *Percutaneous balloon mitral valvuloplasty* 38270-03 **[637]** *Percutaneous balloon pulmonary valvuloplasty* 96222-00 **[626]** *Percutaneous mitral valvuloplasty using closure device*

15. Do you support the proposal to reassign percutaneous cardiac valve replacement (PCVR) interventions in ADRGs F03 *Cardiac Valve Interventions W CPB Pump W Invasive Cardiac Investigation* and F04 *Cardiac Valve Interventions W CPB Pump W/O Invasive Cardiac Investigation* to F19 *Trans-Vascular Percutaneous Cardiac Interventions*?

16. Do you support the proposal to remove PCVR interventions from ADRG F05 *Coronary Bypass W Invasive Cardiac Investigation* and F06 *Coronary Bypass W/O Cardiac Investigation*?

4.1.5 Peritonectomy

Peritonectomy is a treatment that may be considered for pseudmyxoma peritonei, appendix cancer, colorectal cancer and peritoneal mesothelioma. It may also be considered for ovarian cancer, gastric cancer and some other rare cancers as a non-standard but potentially therapeutic treatment.

A public submission was received seeking a review of the grouping of peritonectomy within the AR-DRG classification. It specifically highlighted an issue with the grouping of peritonectomy episodes within MDC 06 *Diseases and Disorders of the Digestive System*. Although this is not the only MDC where peritonectomy procedures are classified.

IHPA has reviewed the current grouping of peritonectomy within AR-DRG V10.0. Analysis demonstrated that the volume of peritonectomy episodes is increasing in recent years, from 114 episodes in 2016–17 to 379 episodes in 2018–19. The majority of peritonectomy episodes are captured within MDC 06 *Diseases and Disorders of the Digestive System* and MDC 13 *Diseases and Disorders of the Female Reproductive System*.

Analysis on the cost profile demonstrated that peritonectomy episodes appear to be more expensive than other episodes within the same DRGs in both MDCs 06 and 13. The volume of peritonectomy episodes in MDC 06 exceeded 200 per year in 2017–18 and 2018–19, which warrants the creation of a specific ADRG, while the number in MDC 13 is too low to warrant a new ADRG.

Given the results, IHPA recommends implementing a new ADRG for peritonectomy in AR-DRG V11.0.

17. Do you support the proposal to create a specific ADRG for peritonectomy?

4.1.6 Analysis of gestational age for neonates

In AR-DRG V10.0, admission weight is used as the main driver of most ADRGs within MDC 15 *Newborns and Other Neonates*, while gestational age is currently only used in combination with admission weight in two ADRGs.

A public submission was received from the Australian and New Zealand Neonatal Network (ANZNN) suggesting that gestational age is a better predictor of clinical complexity in the AR-DRG classification than admission weight.

Gestational age is currently not collected as a separate variable within the national activity data collection for admitted patients. However, the concept of gestational age is collected using the following ICD-10-AM codes for preterm neonates:

- P07.21 *Extreme immaturity, less than 24 completed weeks*
- P07.22 *Extreme immaturity, 24 or more completed weeks but less than 28 completed weeks*
- P07.31 *Preterm infant, 28 or more completed weeks but less than 32 completed weeks*
- P07.32 *Preterm infant, 32 or more completed weeks but less than 37 completed weeks*
- P07.30 *Preterm infant, unspecified*.

Using the ICD-10-AM codes for preterm neonates as a proxy for gestational age, IHPA compared admission weight and gestational age in classifying neonatal episodes. The results demonstrated that gestational age performs slightly better than admission weight in explaining cost variations and there is potential for gestational age to provide additional predictive power for cost variation within the same admission weight groups.

It is proposed to include the ICD-10-AM codes for preterm neonates in DCL precision for AR-DRG V11.0 so that more granular gestational age can be considered within the complexity model.

It is also proposed to incorporate further granularity within the ICD-10-AM codes for preterm neonates to capture gestational age in weeks in ICD-10-AM Twelfth Edition to facilitate greater DCL precision in later AR-DRG versions.

In addition, IHPA has worked with states and jurisdictions to collect gestational age data that can be linked to the national activity data collection. Further analysis will be conducted, which will include an assessment of the feasibility of replacing admission weight with gestational age in a future version of AR-DRGs.

4.1.7 Review of sex edits in the admitted care classifications

The biological concept of sex that is collected in the health national minimum data sets (NMDS) is described as the chromosomal, gonadal and anatomical characteristics associated with biological sex. Where an individual has conflicting biological characteristics, the anatomical characteristics are used to determine their sex for reporting purposes.

Feedback has indicated that sex may be misreported when patients are not aware of an internal organ or chromosomal abnormality that conflicts with their anatomical characteristics of sex, or respond using the sociological concept of gender that describes a person's internal belief of their identity instead of sex. Therefore, the sex variable collected in the NMDS may not always be reliable to determine the anatomical or biological characteristics of a patient.

In the AR-DRG classification, the sex variable is primarily used as follows:

- Edit variable – to promote data quality, flags are generated to warn the user that an individual's sex does not match with the biological characteristics of a diagnosis or intervention code.

- Classification variable – to inform the grouping of an episode to MDC 12 *Diseases and Disorders of the Male Reproductive System* and MDC 13 *Diseases and Disorders of the Female Reproductive System*, and to group episodes that fail the 'sex conflict test' to ADRG 960 *Ungroupable* in MDCs 12, 13 and 14 *Pregnancy, Childbirth and the Puerperium*.

4.1.7.1 Limiting the requirement to use 'sex' as a classification variable

When 'sex' is misreported, it may impact the grouping of the episode within the AR-DRG classification, especially in MDCs 12 and 13. For AR-DRG V10.0, there are 67 principal diagnosis codes that require the sex variable to determine whether the episode should be assigned to MDC 12 or 13.

IHPA has reviewed the 67 principal diagnosis codes to limit the need for sex as a classification variable, and proposes to:

- relocate codes that do not relate to the reproductive system to a more appropriate MDC
- relocate codes that already reflect a specific reproductive system to the appropriate MDC (either MDC 12 or 13)
- develop new codes in ICD-10-AM Twelfth Edition for concepts relating to the reproductive system that are currently unable to distinguish between the male and female reproductive organs.

Following the review and recommendations proposed above only one principal diagnosis code, R10.2 *Pelvic and perineal pain*, will still require the sex variable to determine if it relates to the male or female reproductive system. IHPA has worked with the ITG to enhance classification guidelines in the assignment of this code and will conduct further review in a future development cycle with the intention to remove the need for sex as a classification variable altogether.

The proposed ADRGs and MDCs for ICD-10-AM codes that will be relocated (**Appendix D**) and the ICD-10-AM codes that have been created to distinguish the specific reproductive system (**Appendix A**) are available as an Excel spreadsheet on the IHPA website.

4.1.7.2 Error ADRG when reported sex does not match principal diagnosis

Once an episode is assigned to MDC 12, 13 or 14 by the principal diagnosis, it is subject to the 'sex conflict test'. This requires the sex variable to be a permissible value before it groups to the appropriate ADRG. If the reported sex does not match the sex conflict test for each MDC then the episode will group to ADRG 960 *Ungroupable*. **Table 4** demonstrates the permissible values for the MDCs where the sex conflict test is applied.

Table 4: MDCs with the sex conflict test in AR-DRG V10.0.

MDC with sex conflict test	Permissible values for the sex conflict test
MDC 12 *Diseases and Disorders of the Male Reproductive System*	'Male' (1) or 'Other' (3)
MDC 13 *Diseases and Disorders of the Female Reproductive System*	'Female' (2) or 'Other' (3)
MDC 14 *Pregnancy, Childbirth and the Puerperium*	'Female' (2) or 'Other' (3)

IHPA has received feedback that the sex conflict test can force an episode to group to an error ADRG even when the data for that episode is correct. The sex conflict test would be triggered in circumstances such as when a male has an ovary discovered and removed in an episode. These situations are clinically valid but the sex conflict test has no sensitivity to deal with these rare circumstances.

IHPA proposes to remove the sex conflict test in MDCs 12, 13 and 14 and instead rely on the principal diagnosis to ensure appropriate grouping in AR-DRG V11.0.

18. Is there support for the removal of the sex conflict test in AR-DRG V11.0 and instead rely on the selection of principal diagnosis to drive grouping for episodes in MDC 12 *Diseases and Disorders of the Male Reproductive System*, 13 *Diseases and Disorders of the Female Reproductive System* and 14 *Pregnancy, Childbirth and the Puerperium*?

4.1.8 Nail and nail bed procedures for hand and foot

Two public submissions highlighted a grouping anomaly in MDC 08 *Diseases and Disorders of the Musculoskeletal System and Connective Tissue*, whereby episodes that treat conditions of the hand group to ADRG I20 *Other Foot Interventions*.

There are intervention codes in ACHI that reflect the anatomical site for interventions relating to hand and foot. Two of these are not sufficiently granular to appropriately inform grouping:

- 46486-00 **[1636]** *Primary repair of nail or nail bed*
- 46489-00 **[1636]** *Secondary repair of nail or nail bed*.

The anomaly occurs when episodes receive a nail or nail bed repair to the hand but do not have a hand specific principal diagnosis.

IHPA assessed the impact of this grouping anomaly and identified 57 episodes within ADRG I20 from 2016–17 to 2018–19 that appear to have only fingernail repair interventions. It is proposed to expand the generic ACHI codes for nail repair to distinguish fingernail from toenail repairs in ACHI Twelfth Edition as outlined in **Table 5**. Expansion of the ACHI nail repair codes will allow episodes with a nail repair intervention to group to an anatomically appropriate ADRG. The corresponding changes to the definitions of ADRGs that currently use nail repair interventions (**Appendix E**) are provided as an Excel spreadsheet on the IHPA website.

Table 5: Expanded code titles to refer specifically to fingernail or toenail interventions.

Existing ACHI code	Proposed new ACHI codes
46486-00 **[1636]** *Primary repair of nail or nail bed*	46486-01 **[1636]** *Primary repair of fingernail or nail bed of finger* 46486-02 **[1636]** *Primary repair of toenail or nail bed of toe*
46489-00 **[1636]** *Secondary repair of nail or nail bed*	46489-01 **[1636]** *Secondary repair of fingernail or nail bed of finger* 46489-02 **[1636]** *Secondary repair of toenail or nail bed of toe*

4.2 Areas assessed and not progressed for AR-DRG V11.0

A number of other areas within the AR-DRG classification were reviewed during development, however, following analysis and consultation through IHPA's clinical and technical advisory committees, they have not been proposed for inclusion in AR-DRG V11.0 as detailed below.

4.2.1 Neurostimulators

Neurostimulation, also called neuromodulation, is an intervention where nerves are stimulated and can be performed invasively or non-invasively. Neurostimulators are a treatment option for several neurological conditions including Parkinson's disease, essential tremor, chronic pain and urinary and faecal incontinence.

Episodes for insertion of neurostimulators previously grouped to a Pre MDC ADRG in AR-DRG Versions 6.0 to V8.0. In AR-DRG Version 9.0 (V9.0), a review of the Pre MDC processing was conducted, which highlighted that neurostimulator episodes were clinically disparate and not inherently high cost. Therefore, the Pre MDC ADRG for insertion of neurostimulators was removed and the intervention for insertion of neurostimulators was added to the definitions of several intervention ADRGs across a range of MDCs.

Submissions were received regarding the removal of the Pre MDC ADRG for insertion of neurostimulators in AR-DRG V9.0. The concerns primarily related to the potential adverse consequences on government funding, health service management practice and patient care due to less transparency in the revised classification of neurostimulator episodes in AR-DRG V9.0.

IHPA reviewed the prevalence of neurostimulator episodes. Analysis demonstrated that neurostimulator episodes group to 14 MDCs, with the majority grouping to five MDCs. This demonstrates that neurostimulator episodes have very different clinical indications.

Analysis of cost profiles demonstrated that prosthesis costs contribute to over half of the total cost for neurostimulator episodes, which is much higher compared to the average across all episodes. Neurostimulator episodes have lower average cost and length of stay relative to other episodes after excluding the prosthesis costs.

The results reinforced the decision to remove the Pre MDC ADRG for insertion of neurostimulators in AR-DRG V9.0. Therefore, it is proposed, in consultation with CCAG and DTG that no change be made to the grouping of neurostimulators in AR-DRG V11.0.

4.2.2 Socioeconomic factors

In feedback from the *Consultation paper on the Pricing Framework for Australian public hospital services 2019–20*, it was suggested that socioeconomic factors, such as issues related to housing, economic and psychosocial circumstances, add to the cost and complexity of an episode of care and should be considered in the AR-DRG complexity model.

During the development of the ECC Model in AR-DRG V8.0, socioeconomic factors were excluded from the complexity model as they were not considered to contribute to the clinical complexity of an admitted acute episode. Rather, they were considered to be a pre-disposing factor in leading to an admission or in delaying discharge and sometimes also reflected a lack of services available to discharge a patient safely, but this was not seen to make the episodes clinically more complex.

IHPA reviewed the cost profile of socioeconomic episodes that were identified using a list of ICD-10-AM codes deemed to represent socioeconomic factors. Analysis demonstrated that episodes that included socioeconomic factors are only marginally more expensive than other episodes within the same DRGs. Further analysis by care type demonstrated that socioeconomic factors are more prominent within the mental health care type.

As mental health admitted acute episodes will be captured under the Australian Mental Health Care Classification (AMHCC) in future ABF arrangements, no change is recommended in AR-DRG V11.0 for socioeconomic factors.

4.2.3 Traumatic spinal cord injury

A submission received in response to the *Consultation Paper on the Pricing Framework for Australian public hospital services 2020–21* from the John Walsh Centre for Rehabilitation Research, University of Sydney requested a review of the funding adequacy for traumatic spinal cord injury (TSCI) episodes. The submission highlighted a research study that stated TSCI episodes in NSW are on average underfunded, especially those hospitals with specialist spinal cord injury units (SCIUs).

IHPA analysed TSCI episodes using ICD-10-AM codes identified in the research study, except that spinal fractures and dislocations without a spinal cord injury were excluded as they were deemed to not be part of the TSCI cohort. This was subsequently confirmed as correct in consultation with CCAG.

The analysis demonstrated that TSCI episodes group to various MDCs and ADRGs based on interventions and diagnoses. The costs of TSCI episodes vary significantly across ADRGs. Therefore, TSCI episodes do not meet the criteria for assignment to a Pre MDC due to the large variation in cost distribution and the fact that they are not defined by a particular intervention.

Overall, TSCI episodes appear to be more expensive than episodes within the same DRGs. However, after taking into account pricing adjustments such as short and long-stay outliers and ICU hours, TSCI episodes are only slightly more costly than other episodes.

TSCI episodes in specialist hospitals and those with a separation mode of *discharge/transfer to (an)other acute hospital* or *statistical discharge – type change* are relatively more expensive, suggesting that these are the more severe TSCI episodes. However, these two variables are administrative variables and are not suitable for use in AR-DRGs. Therefore, it is proposed that no change be made to the grouping of TSCI episodes for AR-DRG V11.0.

19. Do you have any additional feedback on the proposed changes for AR-DRG V11.0?

4.3 Finalisation of AR-DRG V11.0

Following the conclusion of the public consultation and final decisions on the proposed changes, there are a number of other tasks that need to be completed to finalise AR-DRG V11.0. These tasks will be undertaken in consultation with IHPA's clinical and technical advisory committees and are detailed below.

4.3.1 Intervention hierarchy review

The intervention hierarchy is the hierarchical order of intervention ADRGs within each MDC of the AR-DRG classification. Episodes with multiple interventions have the potential to meet the criteria for multiple ADRGs. When this occurs the intervention hierarchy ensures that the episodes are assigned to the ADRG that comes first in the hierarchy.

The intervention hierarchy is principally based on cost, with high cost ADRGs higher in the hierarchy. Other factors that also affect the intervention hierarchy include:

- Specificity – specific ADRGs being placed higher than non-specific ADRGs.
- Procedure type – initial definitive intervention ADRGs being placed higher than follow-up supportive interventions and major intervention ADRGs being placed higher than minor or 'other' intervention ADRGs.

- Treatment type – treatment intervention ADRGs being placed higher than diagnostic intervention ADRGs.

The hierarchy review should take place with each new version of AR-DRGs and can only occur when final decisions on AR-DRG classification structure changes are finalised.

4.3.2 Finalisation of the DCLs

When the AR-DRG classification structure has been finalised, revised DCLs need to be derived for all diagnosis codes that are in-scope for receiving DCLs based on the most recently available activity and cost data. For AR-DRG V11.0, the calculation of DCLs is informed by data over a four-year period from 2015–16 to 2018–19. This will also be impacted by the updated diagnosis exclusions discussed in section 4.1.1.1. This process will include consideration of stability measures for DCLs developed in AR-DRG V10.0.

4.3.3 Review of the complexity splits

Each ADRG will also be reviewed to assess whether a complexity split is required and if so, the optimal complexity split, based on splitting principles. This process will include consideration of stability measures for complexity splits developed in AR-DRG V10.0, and considers the number of splits in previous AR-DRG versions and assesses ADRGs with large movements of episodes between complexity groups to ensure all movements are understood and justified.

4.3.4 Incorporation of ICD-10-AM/ACHI/ACS Twelfth Edition

AR-DRG V11.0 has been developed using ICD-10-AM/ACHI Eleventh Edition data. However, ICD-10-AM/ACHI Twelfth Edition is the accompanying edition for AR-DRG V11.0. Once Twelfth Edition ECLs and maps are finalised impact assessment will be undertaken and any untoward impact will be addressed before being implemented in the AR-DRG V11.0 specifications.

5 Next steps

Feedback received in response to the consultation paper will be reviewed and if necessary further analysis of proposals and consultation will occur through IHPA's advisory committees. IHPA will present public consultation feedback to CCAG, ITG and DTG to ensure appropriate changes are made to the classifications.

The final ICD-10-AM/ACHI/ACS Twelfth Edition and AR-DRG V11.0 will be reviewed by IHPA's committees and approval of the final ICD-10-AM/ACHI/ACS Twelfth Edition will be sought from the Pricing Authority in November 2021 and approval of the final version of AR-DRG V11.0 will be sought from the Pricing Authority in February 2022.

5.1 ICD-10-AM/ACHI/ACS Twelfth Edition

The following will be made available in the latter part of 2021 and early 2022 to assist users in implementing ICD-10-AM/ACHI/ACS Twelfth Edition:

- Electronic code lists (ECLs) for ICD-10-AM and ACHI
- mapping tables for Eleventh Edition to Twelfth Edition
- mapping tables between ICD-10-AM Twelfth Edition and ICD-10 (2019)
- ICD-10-AM/ACHI/ACS Twelfth Edition Final Report
- Classification manuals:
  - ICD-10-AM Tabular List of Diseases (Volume 1)
  - ICD-10-AM Alphabetic Index of Diseases (Volume 2)
  - ACHI Tabular List of Interventions (Volume 3)
  - ACHI Alphabetic Index of Interventions (Volume 4)
  - Australian Coding Standards (Volume 5)
- New edition educational program and implementation materials
- ICD-10-AM/ACHI/ACS Chronicle.

5.2 AR-DRG V11.0

Prior to the release of AR-DRG V11.0 in July 2022, the following will be made available in the first half of 2022:

- AR-DRG V11.0 Final Report
- AR-DRG V11.0 Technical Specifications
- AR-DRG V11.0 Definitions Manual
- AR-DRG V11.0 education material
- AR-DRG V11.0 Developer Specifications.

Annexure 1—List of consultation questions

Consultation question **Page number**

12. Do you support the proposed cost groups within the ICD-10-AM code categories (see **Appendix C**) for DCL precision in AR-DRG V11.0? Page 25

13. Do you support the proposed ADRGs for the General Interventions (GIs) and principal diagnoses outlined in **Appendix B.1 and B.1** on the IHPA website? Page 26

14. Do you support the proposal to create an ADRG specifically for endovascular clot retrieval (ECR) in AR-DRG V11.0? Page 26

15. Do you support the proposal to reassign percutaneous cardiac valve replacement (PCVR) interventions in ADRGs F03 *Cardiac Valve Interventions W CPB Pump W Invasive Cardiac Investigation* and F04 *Cardiac Valve Interventions W CPB Pump W/O Invasive Cardiac Investigation* to F19 *Trans-Vascular Percutaneous Cardiac Interventions*? Page 28

16. Do you support the proposal to remove PCVR interventions from ADRG F05 *Coronary Bypass W Invasive Cardiac Investigation* and F06 *Coronary Bypass W/O Cardiac Investigation*? Page 28

17. Do you support the proposal to create a specific ADRG for peritonectomy? Page 28

18. Is there support for the removal of the sex conflict test in AR-DRG V11.0 and instead rely on the selection of principal diagnosis to drive grouping for episodes in MDC 12 *Diseases and Disorders of the Male Reproductive System*, 13 *Diseases and Disorders of the Female Reproductive System* and 14 *Pregnancy, Childbirth and the Puerperium*? Page 31

19. Do you have any additional feedback on the proposed changes for AR-DRG V11.0? Page 33

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