
Review of non-admitted classifications Consultation Report

Final

8 October 2013

Acronyms and abbreviations

Acronym/ abbreviation	Description
ABF	Activity Based Funding
CAC	Clinical Advisory Committee
IHPA	Independent Hospital Pricing Authority
ICT	Information Communication Technology
ICD-10	International Classification of Diseases tenth revision
ICF	International Classification of Functioning Disability and Health
MBS	Medicare Benefits Schedule
NEP	National Efficient Price
NHRA	National Health Reform Agreement
NHCDC	National Hospital Cost Data Collection
NNPAC	National Non-Admitted Patient Collection
NWAU	National Weighted Activity Units
NACAWG	Non-Admitted Care Advisory Working Group
PwC	PricewaterhouseCoopers
RIV	Reduction in Variance (R2)
VINAH	Victoria Integrated Non-Admitted Health Minimum Dataset
VACS	Victorian Ambulatory Classification and Funding System
WHO	World Health Organisation

Executive summary

Introduction

PricewaterhouseCoopers (PwC) has been engaged by the Independent Hospital Pricing Authority (IHPA) to undertake a review of existing non-admitted patient care classifications and recommend a new or revised classification to support Activity Based Funding (ABF) in non-admitted services. The project objectives are to:

- Develop criteria against which to assess non-admitted classification systems including classification principles such as clinical meaningfulness, patient centricity and resource homogeneity
- Investigate existing local and international classification systems relative to the criteria developed and the existing Tier 2 Non-Admitted Services classification models for patient services provided in outpatient, community and outreach settings
- Identify feasible and preferred non-admitted classification systems for use nationally – Based on the investigation above
- Pending agreement on a preferred non-admitted classification system, develop a recommended approach for the development/implementation of the new or existing classification.

Approach

The project methodology has a 4 phase approach:

- 1 In phase 1 of the non-admitted classification review, the key informant interview stage, we met with IHPA key experts, members of the Non-Admitted Care Advisory Working Group (NACAWG), IHPA's Clinical Advisory Committee (CAC) and local and international classification experts (see Appendix A). A key objective of phase 1 was to obtain feedback on Tier 2 and identify classification systems deemed relevant to consider for inclusion in a literature review
- 2 A literature review was completed as phase 2 of the project¹. The objective of the literature review was to identify relevant non-admitted international classification systems and provide an overview of these systems: their development history; the data elements that underpin those classifications; and the counting and funding rules that apply to each system. Eleven non-admitted classifications in use in the US, England, Canada, New Zealand and Ireland were overviewed as well as eleven sub-classification, underlying datasets or primary care classifications
- 3 The third phase of this project was a consultation workshop. The objectives of the workshop were to discuss and understand the various perspectives on the key principles that should be applied to the development of non-admitted classification in Australia and the prioritisation of these; and the options related to counting rules, data elements and other cost drivers that will underpin non-admitted classification. Participants representing IHPA, NACAWG and CAC and other classification experts participated via videoconferencing facilities in Melbourne, Perth, Brisbane, Canberra, Adelaide and Hobart (see Consultation workshop acceptances Appendix C)
- 4 In the fourth phase of the project we will analyse the information we have gathered from the literature reviews and consultations, and propose a roadmap for future development of a feasible non-admitted classification system.

The report that follows is a consultation summary, which includes a summary of the findings from the key informant interviews and the consultation workshop (phases 1 and 3).

¹ Review of non-admitted classification Literature Review, 23 August 2013.

Findings from key informant interviews

Approximately 30 individual meetings were held with both local and international key informants to discuss Tier 2 and other classification systems in use. The seven key themes that emerged from these consultations are summarised below and further discussed in Section 2 of the report that follows.

- There is increasing use of non-admitted services as part of the drive for cost efficiency in care delivery and therefore an increasing need for non-admitted classification that accurately reflects the activity and cost of these services
- There is considerable diversity in the delivery of non-admitted care services both in regards to the patients' care requirements and the models of care in use
- There are inconsistent business rules and definitions for non-admitted services
- Limitations in the reported data have undermined development of the non-admitted classification system
- There is inconsistent interpretation of counting rules for service events
- The current system is subject to gaming and disincentivises some models of care, specifically multidisciplinary care and telehealth
- Stakeholders have specific recommendations regarding non-admitted classification development that builds on existing systems and adds data elements to better reflect resource utilisation.

Findings from consultation workshop

A consultation workshop was held on 20th August 2013, with approximately 55 participants attending across the country. The workshop covered the following four areas: principles, unit of count, data elements, and other cost drivers. The findings of each of these sessions are summarised below and further discussed in Section 3 of the following report.

Principles to consider in the development of a classification system²

- Principle 1: Comprehensive, mutually exclusive and consistent
- Principle 2: Clinically meaningful
- Principle 3: Resource use homogeneity
- Principle 4: Patient based
- Principle 5: Simple and transparent
- Principle 6: Minimising undesirable and inadvertent consequences
- Principle 7: Capacity for improvement
- Principle 8: Utility beyond activity based funding
- Principle 9: Administrative and operational feasibility.

² The final principles have been harmonised with those of the ED classification project in order to create a single set of principles to guide IHPA classification development.

The unit of count for non-admitted services within the classification

A key finding from the international literature review was that there are two types of counts used in non-admitted classification: a *service event*, where one patient visit (attendance) is classified as one unit of count and counting rules determine how procedures or interventions are bundled; or an *episode*, where all activity within a defined time period is considered one unit of count. Participants discussed the applicability and strengths and weaknesses of each unit of count.

Many participants acknowledged that the service event unit of count and the time based unit of count both had a place in the non-admitted patient care classification. It was noted that using both counting units to form a hybrid approach may be an option. The overarching feedback on determining appropriate counting rules was that data should be collected at the most granular level practical, in order to test a series of bundling rules that group the data to the highest level that achieves resource homogeneity.

The data elements captured as part of the non-admitted classifications

The workshop participants explored the benefits and weaknesses of incorporating data related to: *service descriptions* (procedures/interventions); *diagnoses*; and *other patient characteristics* (such as age and functional status). While some data elements were identified as stronger cost drivers than others there was consensus that all should be included, with some caution about the timing of implementation and the need to run studies in advance of national roll out.

Other cost drivers to be considered in the development of the classification.

The discussion around other cost drivers that should be considered centred around multi/interdisciplinary care with a common view that extra time and resources are required for this care model which is not properly considered in the Tier 2 system. Other cost drivers such as transport costs incurred in the home based setting, remoteness, carer support, transfers to hospital and level of community support were also raised and discussed.

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1 Introduction

1.1 Project objectives and approach

PricewaterhouseCoopers (PwC) has been engaged by the Independent Hospital Pricing Authority (IHPA) to undertake a review of existing non-admitted patient care classification system and recommend a new or revised classification for Activity Based Funding (ABF).

The project scope is to:

- Consider the longer-term non-admitted classification development
- Mental Health – It is expected that when any new or significantly revised non-admitted classification is implemented, the Australian Mental Health Care classification will be in place. For this reason, mental health is out of scope for the non-admitted classification review project
- Non-admitted subacute – IHPA is undertaking a procurement of a consultancy to develop AN-SNAP version 4. Non-admitted subacute care is in scope for both the PwC consultancy, and the consultancy to develop AN-SNAP version 4. A decision on the most appropriate way to classify non-admitted subacute care will be made following the conclusion of both the non-admitted and subacute consultancies.

The project objectives are to:

- 1 Collaboratively develop criteria against which to assess non-admitted classification systems including classification principles such as clinical meaningfulness, patient centricity and resource homogeneity
- 2 Investigate existing local and international classification systems relative to the criteria developed and the existing Tier 2 Non-Admitted Services classification models for patient services provided in outpatient, community and outreach settings
- 3 Identify feasible and preferred non-admitted classification systems for use nationally – Based on the investigation above and consultations with stakeholders
- 4 Pending agreement on a preferred non-admitted classification system, develop a recommended approach for the development/implementation of the new or existing classification.

There are 4 distinct phases of work within this project which will inform the review and recommendations made, these are:

Phase 1	Phase 2	Phase 3	Phase 4
Key informant interviews	Literature review	Consultation workshop	Analysis and evaluation

1.2 Key informant interviews

In phase 1, the key informant interview stage, PwC held meetings or teleconferences with members of the IHPA Non-Admitted Care Advisory Working Group (NACAWG), IHPA's Clinical Advisory Committee (CAC), IHPA classification experts, other Australian classification experts and international classification experts (see consultation list in Appendix A). The objectives of these consultations were to obtain feedback on the existing non-admitted classification system, Tier 2, and identify classification systems deemed relevant to consider for inclusion in the literature review³.

Section 2 of this report includes a summary of the key themes from these interviews.

³ Review of non-admitted classification Literature Review, 23 August 2013.

1.3 Literature review

A literature review was completed as phase 2 of the project. The objective of the literature review was to identify relevant non-admitted international classification systems and provide an overview of these systems: their development history; the data elements that underpin those classifications; and the counting and funding rules that apply to each system. Eleven non-admitted classifications in use in the US, England, Canada, New Zealand and Ireland were overviewed as well as eleven sub-classifications, underlying datasets or primary care classifications. The findings of the literature review can be summarised as:

- There are a variety of counting rules in use by the different non-admitted classification systems, from a granular count of procedures through to counting individual visits/attendances or count of all services within a defined time band/episode
- There are variable approaches to the counting/funding of 'multi-disciplinary' care delivery
- Non-admitted classifications use a range of data covering both patient and service characteristics. Those systems that fund a 'service event' prioritise procedures and interventions over patient centric characteristics
- While there is country specific variation in the underlying procedure codes used to build non-admitted classifications, there is generally consistent use of the International Classification of Disease (ICD) coding
- Non-admitted classifications are variable in the scope of care settings to which they apply.
- Classifications develop and mature over time, expanding their utility from activity reporting to costing and funding.

1.4 Consultation workshop

The third phase of this project was a consultation workshop. The objectives of the workshop were to discuss and understand the various perspectives on:

- 1 The key **principles** that should be applied to the development of non-admitted classification in Australia and the prioritisation of these
- 2 The options related **to counting rules, data elements** and **other cost drivers** that will underpin non-admitted classification.

A 5 hour structured workshop was conducted in Sydney on 20 August 2013 with videoconferencing facilities in Melbourne, Perth, Brisbane, Canberra, Adelaide and Hobart. Representatives from IHPA, NACAWG, CAC and other classification experts were invited to attend. A full list of invitees is included in Appendix B.

An agenda as well as consultation papers were sent to each stakeholder in advance for pre-reading. This set out the purpose and logistics of the workshop, the draft classification principles and a summary of findings from the literature review. All NACAWG members and CAC members were sent the full literature review on 31 July 2013.

The design of the workshop was a combination of presentation and small group exercises. Table 1 below sets out the agenda of the workshop.

Table 1: Consultation workshop agenda

Morning session (10:00am – 12:30pm)

Session	Intended outcome
Introduction	Workshop set up and agenda
Principles	Facilitated discussion to consider the principles of classification
Unit of count	Participants understand key findings around counting and then identify strengths and weaknesses of counting options, considering principles and criteria discussed in the morning session

Afternoon session (1:00pm-3:00pm)

Session	Intended outcome
Data elements	Participants understand key findings around data elements and identify strengths and weaknesses of data elements, considering principles and criteria discussed in the morning session
Capturing cost drivers	Participants identify specific issues re: additional cost drivers in the context of classification principles and data collection
Next steps and close	Participants understand next steps in project

Section 3 of this report summarise the discussion points and key findings from the workshop

1.5 Structure of this report

This consultation report has been structured as follows:

Report section	Details
1 – Introduction	Overview of project objectives and approaches to the key informant interviews and Consultation workshop
2 – Themes from the key informant interviews	Details the key themes identified during key informant interviews
3 – Consultation workshop outputs	Details the outcomes of the discussions during the consultation workshop
4 – Principles	A summary of the discussion and findings around the key principles of a classification system
5 – Unit of Count	A summary of the discussion and findings around the Unit of Count for the Australian non-admitted classification system.
6 – Data elements	A summary of the discussion and findings around the Data Elements for the Australian non-admitted classification system.
7 – Other cost drivers	A summary of the discussion and findings around other cost drivers for the Australian non-admitted classification system.
Appendix A – Key informant interviewees	A list of key informants by name and organisation
Appendix B – Consultation Workshop attendees	A list of consultation workshop invitees by name, jurisdiction and organisation

2 Themes from key informant interviews

Approximately 30 key informant interviews were held with IHPA staff, NACAWG members, CAC members and other classification experts, in Australia and internationally to understand current perspectives and experience with Tier 2 and identify relevant literature and non-admitted classification systems for further investigation in the literature review (see Appendix A for list of key informants consulted).

This section summarises the key themes from key informant interviews.

2.1 There is increasing use of non-admitted services as part of the drive for cost efficiency in care delivery and therefore an increasing need for a non-admitted classification that accurately reflects the activity and cost of these services

A consistent theme with Australian key informants was the increasing importance of non-admitted services given the increased focus on cost reduction and the need to move care delivery outside of the hospital setting where possible. While positive attributes of the Tier 2 system were discussed, such as its national implementation and simplicity, the interviews highlighted limitations with the system and considerations for the development of a new system.

2.2 There is considerable diversity in the delivery of non-admitted care services both in regards to the patients' care requirements and the models of care in use

Non-admitted care services are highly diverse in regards to:

- **The patients' care requirements** – Unlike acute inpatient care where there is generally one 'main problem' requiring treatment, non-admitted care frequently involves treatment of multiple problems over a long time period; and non-admitted patients tend to be treated by multiple providers operating independently (with multiple patient records)
- **The models of care** – Treatment interventions vary from simple to complex; there is variability in the clinician's choice of the care setting (between day only, overnight admitted, non-admitted settings, on campus or in the community/home) for the same intervention.

2.3 There are inconsistent business rules and definitions for non-admitted services

A key challenge of the current Tier 2 system is the inconsistency within and across jurisdictions in the interpretation of the clinic mapping, counting rules and data collection for non-admitted services. Furthermore the Tier 2 clinic types are too specialised to be applicable in the rural and remote setting.

In addition, the lack of a nationally consistent admission policy results in inconsistent definitions.

The definition of community services needs to be refined and these services tend to be delivered in packages rather than as individual service events.

2.4 Limitations in the reported data have undermined development of the non-admitted classification system

One of the reported weaknesses of Tier 2 is the lack of granularity of the reported data due to the classification at a clinic and procedure level, ie the system is provider centric instead of patient centric.

A further concern around the reported data is that there is limited patient level costing performed for non-admitted services across the country. This information is necessary for ongoing development of the classification, and for it to adapt to changes in clinical practice, as seen in the development of the admitted acute Diagnosis Related Group system.

2.5 There is inconsistent interpretation of counting rules for service events

Most stakeholders commented on the inconsistency in interpreting the counting rules for service events and therefore that current activity counts do not accurately reflect what is being performed. A number commented that an occasion of service or episode of care would be a more accurate way of counting and that the rules should also capture the time spent on a patient without them being present (excluding administrative duties).

A consistent recommendation was to include a unique service event identifier to facilitate bundling of services.

2.6 The current system is subject to gaming and disincentivises some models of care, specifically multidisciplinary care and telehealth

The current Tier 2 structure is felt to operate as a fee for service model and increase the opportunity for gaming to maximise the national weighted activity units (NWAUs) rather than focussing on efficient and effective service delivery.

- Stakeholders expressed frustration that multi-disciplinary care was not well defined and that the existing Tier 2 structure incentivises appointments on multiple days rather than streamlining the experience for the patient and encouraging interdisciplinary care (that is evidenced in literature as good practice). It was felt that there are a number of specialist clinics that require multiple specialists to deliver the service, however the existing structure is not set up to capture the actual resource use
- The rules around telehealth create disincentives from implementing this model of care.

2.7 Stakeholders have specific recommendations regarding non-admitted classification development that builds on existing systems and add data elements that better reflect resource utilisation

Recommendations for non-admitted classification development include the following:

- Use of existing coding and classification systems such as International Classification of Diseases (ICD 10)
- The use of a diagnosis 'pick-list' or short form list rather than requiring coders or coding that will increase the data burden for clinicians
- Distinguishing between services where the intervention is monitoring and management versus procedures; and between first or follow up visits

Themes from key informant interviews

- Including the counting rules and funding rules that acknowledge the number of clinicians in the room, indigenous status, age, functional status, daily living and cognitive status in the captured data as these are all cost drivers
- Bundling rules (grouping) of patient specific data elements rather than use clinic type.

3 *Results of consultation workshop*

As described above, the consultation workshop focused on 4 key topics: principles that should be applied to the development of non-admitted classification in Australia and the prioritisation of these; and the options related to counting rules, data elements and other cost drivers that will underpin non-admitted classification. The outputs of these sessions are summarised below.

3.1 Classification principles

The first part of the consultation workshop was dedicated to discussing the classification principles that should guide the design and development of a classification system. Ten draft principles were identified as part of the literature review. These ten principles were the starting point of discussion in the workshop:

- Principle 1: Consistent, unique classifying principles in operation
- Principle 2: Classes are mutually exclusive and exhaustive
- Principle 3: System is complete
- Principle 4: Classes are clinically meaningful
- Principle 5: Classes are resource homogenous
- Principle 6: Supports benchmarking
- Principle 7: Workable
- Principle 8: Supports quality policy goals
- Principle 9: Setting independent
- Principle 10: Supports fair and equitable provider reimbursement based on patient centric variables.

3.1.1 Discussion around principles

The purpose of the first session was to get feedback from the participants on whether they were the right set of principles and that they were adequately described. The key points discussed during this session were:

- **Patient Centricity:** Most participants felt that clinical care must be front and centre; however the classification cannot be burdensome to clinicians
- **Prevents Gaming and perverse incentives:** The classification system needs to support Activity Based Funding (ABF) and minimise susceptibility to gaming and perverse incentives
- **Stability:** The classification should be stable, flexible, adaptable and capable of development over time
- **Simple and transparent:** The classification should be simple and transparent, there needs to be a manageable number of classes but the number needs to be sufficient to enable stability of the weights and it should make use of data that is routinely collected
- **Supports policy:** The classification should support policy development and health service planning.

There was some debate around Principle 3 – System is complete, with some participants feeling this was unrealistic and unattainable and others feeling this should be interpreted as the classes being comprehensive.

There were many views on Principle 6 – Supports benchmarking and discussions around ‘what’ was being benchmarked (clinical outcomes, best practice, financial outcomes) with some participants stating that the data should support linking and map to other data sources.

There was debate around whether Principle 5 – Classes are resource homogenous and Principle 9 – Setting independent were in conflict with each other, with a suggestion to amend Principle 9 to being ‘independent of care delivery and structure’ but still recognise the fact that the mode of care (for example telehealth) may be a cost driver.

3.1.2 Principles for future classification development

A set of 9 principles to guide the development of the classification have been identified. These were derived from the feedback received from participants at the workshop and through further refinement by IHPA to streamline the principles between their other classification development projects. It is not expected that all these principles will be equally met by the new system, as their relative importance may fluctuate over the development cycle of the classification system.

Principle #1: Comprehensive, mutually exclusive and consistent

Description

- The classification is comprehensive, with all possible care delivery within the scope of the classification able to be grouped to a class
- Should be able to be applied to all non-admitted care services in scope of activity based funding and perform similarly (clinically and statistically) when applied to different models and/ or settings of care
- Classes within the classification are mutually exclusive, with every in scope care delivery only able to be grouped to a single class
- Class definitions and assignment to classes are clear, consistent and unambiguous.

Principle #2: Clinically meaningful

Description

- The underlying data elements are useful for clinical management purposes in addition to funding purposes
- Should group patients with similar clinical and other characteristics and/ or requiring similar treatment
- The data elements make sense to clinicians, and align with the language used by clinicians for clinical management of their patients.

Principle #3: Resource use homogeneity

Description

- Care events should be assigned to classes with similar levels of resource use
- Estimates of resource use within classes should be stable over time
- When applied prospectively, the classification should explain a substantial level of the cost variation between classes, while minimising the variability of costs within each class
- When assessing an individual data element for its inclusion in the classification, there is strong evidence that the data element explains variation in costs.

Principle #4: Patient based

Description

- Should be based on data elements that reflect the characteristic of patients, rather than characteristics of the service provider or inputs to care
- Classification should be able to be applied consistently across different settings.

Principle #5: Simple and transparent

Description

- The classification has as many classes as are needed for its purpose and no more
- Assignment of cases to classes should occur through a process that is transparent and able to be understood by clinicians and health service managers.

Principle #6: Minimising undesirable and inadvertent consequences

Description

- The classification relies on data elements that are collected consistently and uniformly
- The classification minimises the reliance on data elements that are open to local interpretation and/or provide incentives to change reporting to optimise funding
- The classification should minimise susceptibility to gaming, inappropriate rewards and perverse incentives
- The underlying data contributing to the classification are able to be audited.

Principle #7: Capacity for improvement

Description

- The classification and the underlying data elements should provide information of sufficient granularity to facilitate improvement in the classification over time, for example, to reflect changes in clinical practice patterns and technological advances, and to incorporate emerging knowledge about cost drivers
- The system should be sufficiently flexible to adapt to such change without requiring major restructuring.

Principle #8: Utility beyond activity based funding

Description

- The classification and the underlying data elements should allow the analysis of best practice and facilitate benchmarking
- The data elements required for the classification are useful for purposes other than funding. These may include health services management, monitoring of quality and safety, epidemiological monitoring, understanding practice and cost variation, health services planning and performance reporting.

Principle #9: Administrative and operational feasibility

Description

- The benefits of the data collected for the classification outweigh the administrative cost and burden of collection
- The collection of data utilises approaches that assist with or are consistent with the implementation of the electronic health/medical record
- The cost to establish/ purchase and maintain the classification system is balanced by the benefits that it offers, and is affordable to the health system relative to other priorities.

3.2 Unit of count

The workshop session on 'unit of count' was framed around the various options for unit of count that could be used in a non-admitted classification.

One of the findings from the international literature review was that there are a variety of counting rules in use by the different non-admitted classification systems from a granular count of procedures through to individual visits or bundling of components of care that are delivered within a defined time band. These various counting rules apply to two types of units of count:

- **Service event** – Where one patient visit (attendance) is classified as one unit of count. A service event may contain a number of procedures or interventions that are bundled together to form this one counting unit. Alternatively, the service event may be driven by the main procedure conducted
- **Time based episode** – Where all activity within a defined time period is considered one unit of count. Options to define a time based episode include a specified number of days, such as a 60 day period, or all care events within a year (to support an annual 'capitated' payment). Note: the definition of an episode of time does not relate to time increments within a service event.

The literature on the performance of classifications using these two units of count indicates that a service event is more appropriate for intermittent/acute conditions compared to the time based episode which was considered more appropriate for persistent/chronic conditions.

3.2.1 Discussion on 'units of count'

Most participants noted that the service event and time-based episode unit of count were both relevant to a non-admitted care classification. The rationale for using both units of count includes that different types of care seem more naturally suited to the different options for unit of count, for example dialysis or chronic care would appear to be more suited to time based payments.

Participants also noted there are currently Australian funding models using both options, for example ABF currently pays for Admitted care on a variable time based episode (a separation) and the Aged Care Funding Instrument is based on time based episodes; whereas the Medicare Benefit Schedule pays on a service event.

When focussing on home based care delivery, participants did not have a consensus view on the unit of count; remarking on the variable practice around the country as to treating this care setting as admitted or non-admitted.

The overarching feedback on determining the appropriate counting rules was that data should be collected at the most granular level practical, in order to test a series of bundling rules to group the data to the highest level that achieves resource homogeneity. This speaks to the development of the classification over time as costing data can be analysed and funding rules refined.

3.2.2 Strengths and weaknesses of the unit of count

Participants were asked to discuss the relative merits and weaknesses of the two unit of count options (service events and episodes).

Strengths associated with using a service events unit of count

The strengths noted in regards to using a service event as the unit of count in a classification were that the service event enables both flexibility and accuracy in the classification, being able to accommodate a number of different care types, diagnosis, severity and complexity of the case as well as procedure or intervention if a more granular approach to data collection is taken.

Importantly, participants felt there were benefits to counting and reporting data at the lowest level possible, but that this should be balanced with the unit of count being at a manageable and workable level. The service event as a unit of count was seen as more aligned to collection of granular data and an administratively easy option. The benefit of the data being collected at the lowest level possible was to capture data that is more patient centric than the current state of play and so that the data can be used effectively for costing as well as planning. Participants felt the level of data collected must be easy to group or bundle, however, it was noted that the bundling needed to remain aligned to the principle of resource homogeneity.

Weaknesses associated with using a service events unit of count

Participants identified some weaknesses of implementing the service events as a unit of count. These included that classifying using service events has the potential to incentivise fragmenting care. A related concern was the increased risk of over or under servicing that is more likely when a service event rather than a time based episode is used, with concern that bundling rules for compiling service events may create perverse incentives.

Whilst some participants viewed the service event unit of count to be workable in current clinical practice, collecting at the service event level may also disincentivise greater data collection, creating a greater burden for clinicians. Further, it was perceived that there may be more difficulty capturing further granular data regarding 'service events' in a home setting than in hospital outpatient clinic settings.

Particular concern was voiced around the difficulties surrounding the counting of multidisciplinary care, where the patient is seen by multiple providers.

Strengths associated with using a time based episode unit of count

When comparing the time based episode with the service event, participants noted that the time based episode may be a more appropriate unit of count for particular health conditions and cohorts of patients, with a number of participants citing chronic management, palliative care, dialysis, podiatry and some types of rehabilitation as examples. For these types of care, the time based episode was noted to be more patient centric than the service event.

Some participants noted that the time based episode was preferred by clinicians because resources and funding were easier to manage and assumed to place less of an administrative burden on clinicians. Some participants assumed that time based episodes would be more resource homogeneous than service events for the types of conditions identified above.

When discussing the long term view of the classification, participants felt that a time based episode of care was better able to drive efficiency compared to a service event and that it could operate within a casemix context to encourage clinicians to take a long term view of good practice care for their patients.

Compared to a service event, time based episodes were considered to be less likely to encourage over servicing.

Weaknesses associated with using a time based episode unit of count

One of the weaknesses of the time based episode as a unit of count was perceived to be that it would be more complex than a service event to implement and that further work would be required to identify the types of care for which it would be appropriate. Further complexities include how time based episodes could support transfer between providers and settings and funding for patients with long term/multiple episode needs.

Compared to the service event, participant perceptions were that time based episodes have the potential to lose data granularity; would not support benchmarking as well, thus could create disincentives clinicians to drive efficiency in care; and could make it more difficult to achieve mutual exclusivity in the classification.

Overall findings

Many participants acknowledged that the service event unit of count and the time based unit of count both had a place in the non-admitted patient care classification. It was noted that using both to form a hybrid via clinical input may be an option.

3.3 Data elements

The literature review revealed there are three key types of data collected by the various non-admitted classifications reviewed:

- **Service descriptions** procedures, interventions and time are seen as key cost drivers and many classification hierarchies lead with procedures and interventions
- **Patient characteristics** including age and diagnosis were more likely to be a secondary axis after procedure, intervention or other service descriptors
- **Diagnosis** data has been deemed as not indicative of resource use within a single encounter, but is the basis of some episode based classifications and is widely collected and frequently uses International Classification of Diseases (ICD) codes.

A key finding of the literature review was that, while non-admitted classification hierarchies use a range of patient and service characteristics, they are more likely to prioritise procedures and interventions over other patient centric characteristics as these are deemed the more robust indicator of resource use.

The key data elements for a non-admitted classification were discussed in context with different classifications seen internationally in the literature review. Three themes emerged in the discussion:

- **Rationale for collecting the data** – Participants identified there would need to be evidence of a link between the data element collected and the cost drivers identified. However, determining the cost drivers is relatively difficult without analysing a large and complete data set. The specificity of the classification was highlighted as important as well as understanding the minimum amount of data required for the classification to be workable
- **Trade-off in consistent application of classification and necessity for variability with the data** – There was discussion around the importance of consistency and the ease of reliably understanding the data elements and their application. This was particularly important where there is variability, for example when there is no coding for diagnoses and for interventions and patient characteristics. In addition, in multidisciplinary care scenarios, consistently applying the classification may be inappropriate or inaccurate
- **Flexibility to meet different needs and interface with other classifications** – The group identified two different ways the collection of data elements would need to be flexible. Firstly, the data elements would need to meet the diverse needs of the users of the classification, for instance, including the diagnosis used for epidemiology. Secondly, the data elements would need to be able to interface with other classifications and be relatively administratively simple.

3.3.1 Diagnosis as a data element

The discussion around including diagnosis as a data element in the classification revealed that participants felt that diagnosis was not necessarily a cost driver, however the ICD-10 classification was widely used.

Strengths of diagnosis as a data element

The main strength of including diagnosis as a data element is its wide use through the number of established classes in ICD-10, the fact that it is readily available and could be implemented Australia-wide.

It was felt that ICD-10 is clinically meaningful because the taxonomy is understood by clinicians and the diagnosis could help explain co-morbidities.

In terms of being workable, ICD-10 was considered a strong option for diagnosis inclusion as it can be presented to clinicians in the non-admitted classification as a reduced diagnosis set or shorter pick list.

Including diagnosis as a data elements means that the classification will in time be useful for other purposes and applications, such as epidemiological research.

Weaknesses of diagnosis as a data element

The limitations considered for including diagnosis as a data element in the classification include that the ICD-10 code set is very large and work will have to be done to determine an appropriate reduced set for clinicians to use so that diagnosis could be recorded in a simple manner and it was noted that where the code sets are limited, the ability to benchmark is reduced.

Participants acknowledged that more research is needed to understand if diagnosis is a cost driver in the non-admitted patient care setting, as currently the link between diagnosis and cost is not well established. This is because the patients present with multiple diagnoses over time, and the use multiple diagnoses increases administrative complexity.

There is the potential that including diagnosis will create a data burden especially with the increased granularity of the collected dataset.

3.3.2 Procedure as a data element

The discussion around whether to include procedures in the data elements of the classification revealed that procedure were known to be a cost driver, and currently there is difficulty in understanding the nature of the procedure being provided for it to be included as a data element. Additional sub-elements which were suggested for inclusion were the type of service provider delivering the procedure, the source of referral and the outcome procedure/intervention.

Strengths of procedure as a data element

There was discussion that the inclusion of procedures versus diagnosis was a better design for a classification which maps to resource use and cost, as procedures are a better indicator of costs.

One of the benefits of capturing procedures is to enable a better understanding of the treatment provided, and for the classification to be clinically meaningful.

While procedure was noted to be workable as a data inclusion and relatively easy to capture, there was not clear consensus on the appropriate code set to support consistent collection of procedure data. Existing codes which were discussed were Australian Classification of Health Interventions (ACHI) and Medicare Benefits Schedule (MBS) with a perception that ACHI is more comprehensive as it is inclusive of medical and nursing procedures and simpler than MBS.

Weaknesses of procedure as a data element

The following weaknesses were identified for using procedure as a data element:

- There are many options and variations of procedures in the Australian health care landscape at present
- Funding based on the procedures performed could lead to over servicing (provider induced demand where it may be difficult to determine the patient required drivers of demand)
- There is a complex relationship between the support services provided and the procedure and so the costs associated with support would need to be considered too.

3.3.3 Additional Patient and Service characteristics

The discussion around whether additional patient and service characteristics should be considered for collection identified that participants believe there are benefits to including additional data elements in order to enable analysis of additional cost drivers.

The specific characteristics that were recommended to be collected included age, severity, functional status, and complexity of their condition as well as if the visit was a first visit, follow up or followed an acute or ED episode.

Strengths of collecting additional patient and service characteristics

It was noted that collecting additional patient characteristics could help predict utilisation and resources, which could be useful further down the line in service planning, driving efficiency and research; and aligns to the classification principle of patient centricity. Participants also indicated that much of this data is already collected in patient records and may be relatively easy to inform the classification development. In this context the International Classification of Functioning, Disability and Health (ICF) was mentioned as a potential data set that should be investigated.

Weaknesses of collecting additional patient and service characteristics

Participants noted that patient characteristics were at risk of being a subjective rather than an objective element to the classification. As such, it may unnecessarily increase the complexity of the classification.

One of the other weaknesses noted was that the data quality for patient characteristics can be poor or incomplete compared to other data elements.

3.4 Other cost drivers

The final session for the workshop focussed on other cost drivers that should be considered in data collection for the development of the non-admitted classification.

3.4.1 Multi or interdisciplinary care

The treatment of multi-disciplinary care was a frequent issue raised in key informant interviews. The literature review found that the treatment of multiple services provided within the same patient visit is variably addressed by classification's counting rules or the funding rules. In the classifications reviewed the variation ranged from systems where only one resource (that deemed most resource intensive) is captured; through to algorithms that weight multiple services during the same visit; and funding rules that dictate separate payments for each or bundled procedures.

The discussion regarding multidisciplinary care in the workshop was around the definition of multi/interdisciplinary care with participants expressing the following points:

- Interdisciplinary care is a form of intervention that has a lot of literature supporting its validity
- Multi/interdisciplinary care takes more time and utilises more resources, which should be built into the counting and funding rules
- There are certain patient conditions or complexities that would require a multi disciplinary approach and this could be captured as part of the patient characteristics data
- Multi-disciplinary should be considered properly as a cost driver in the current Tier 2 rules and in the future non-admitted classification development.

3.4.2 Other cost drivers

Participants nominated a number of other potential cost drivers relevant to non-admitted care delivery, including the length of visits, the setting and mode of delivery (eg face to face, telehealth), remoteness, the number and type of providers present, carer support and involvement, transfers to hospital and level of community support available.

Additionally the discussion of outpatient versus home based care raised the importance of considering setting specific cost drivers, for example transport costs for home delivered care.

Appendix A Key informant interviewees

Key informant interviewees

Table 2: Key informant interviews

IHPA key experts

Key informant interviewee	Organisation
Joanne Fitzgerald	IHPA
Aaron Balm Phuong Nguyen Kylie Mercer	IHPA
Karen Chudleigh	IHPA
Monica Wulff	IHPA
Dr Tony Sherbon Mick Turner	IHPA

Non-Admitted Care Advisory Working Group (NACAWG)

Key informant interviewee	Organisation
Kym Piper Krystyna Parrot Phillip Battista	SA Health
Roslyn Williams Kristen Breed Ruth Catchpoole Mancel Carmont Marie Kelly Garry Thorne	Queensland Health
Susan Dunn Brendan Ludvigsen David Baty Xiao Cai Hirani Jayasinha Julia McGinty Taylor Harchak Jo Chicco	NSW Ministry of Health

Key informant interviewee	Organisation
Jullie Hulcombe Catherine Stephens	Allied Health Professions' Office of Queensland (AHPOQ) Health Service and Clinical Innovation (HSCI) Division
Simon Moy Kris Jenkins (Austin Health) Lesley Ritchie (Melbourne Health) Nermin Songur Phuong Nguyen Bruce Prosser Jackie Kearney Annette Gilchrist Carla Read Frank Aitken	Department of Health, Victoria
Bing Rivera Michele Russell Katherine Ivey Tony Satti Dr Amanda Ling Francisco Chaves Rinaldo Ienco Lynda Gray	Department of Health, Western Australia
Kevin Ratcliffe Julie Turtle Dr John Marrone	Department of Health and Human Services, Tasmania

External key experts

Key informant interviewee	Organisation
Jeff Hatcher Greg Zinck Holly Bartoli	Canadian Institute for Health Information
Christine Fan	Sydney Children's Hospital
David Filby	National Health Information Standards and Statistics Committee
Jennifer Mayhew-Larson Jenny Hargreaves Jodee Njeru	Australian Institute of Health and Welfare
Christopher McGowan	Silverchain
Marc Berlinguet Karen Wilson	3M
Prof. Richard Madden Vera Dimitropoulos	University of Sydney

Key informant interviewee	Organisation
Chris Aisbett	Laeta Pty Ltd
Dr Roger Gurr	Mental Health Working Group
Richard Marshall	Monitor
Donna Killian	PwC USA
Luke Van Doorn	Laeta
Prof Stephen Duckett	Grattan Institute
Prof Kathy Eager Rob Gordon	University of Wollongong
Dr Alan Rosen	

CAC interviews

Key informant interviewee	Organisation
Dr Graham Reynolds	Children's Hospital Australasia
Jan Erven	Wollongong Hospital
Prof John Turnidge	Women's and Children's Hospital
Prof Leon Flicker	Royal Perth Hospital and University of Western Australia
Julie Connell	Princess Alexandra Hospital
A/Prof Louis Irving	Royal Melbourne Hospital
Dr Liza Heslop	Western Health Victoria University
Dr Ruth Vine	Chief Psychiatrist, Inner West Area Mental Health

Appendix B Consultation workshop acceptances

Consultation workshop acceptances

Table 3: Consultation workshop acceptances

Adelaide

Name	Organisation
Phillip Battista	SA Health
Kym Piper	SA Health

Brisbane

Name	Organisation
Julie Connell	Princess Alexandra Hospital
McKinlay Lynne	Department of Health, Queensland
Catherine Stephens	Department of Health, Queensland

Canberra

Name	Organisation
Janine Bevan	Department of Health and Ageing
Jenny Mun	Department of Health and Ageing
Mick Turner	IHPA

Hobart

Name	Organisation
John Marrone	Department of Health and Human Services, Tasmania
Amber Roberts	Department of Health and Human Services, Tasmania

Melbourne

Name	Organisation
Leanne Beagley	Department of Health, Victoria
Annette Gilchrist	Department of Health, Victoria
Dr Liza Heslop	Western Health Victoria University
Peter Hunter	Alfred Health
Jackie Kearney	Department of Health, Victoria
Phuong Nguyen	Department of Health, Victoria
Nermin Songur	Department of Health, Victoria

Perth

Name	Organisation
Jonothan Bird	Department of Health, WA
Rory Carle	Department of Health, WA
Francisco Chaves	Department of Health, WA

Name	Organisation
Luke Hays	Department of Health, WA
Katherine Ivey	Department of Health, WA
Dr Amanda Ling	Department of Health WA
Bing Rivera	Department of Health, WA
Michele Russell	Department of Health, WA
Tony Satti	Department of Health, WA
Dr Fiona Wood	Department of Health, WA
Andy Wu	Department of Health, WA

Sydney

Name	Organisation
David Braddock	AIHW
Xiao Cai	NSW ABF Taskforce
Joanne Chicco	NSW Health
Dr Richard Chye	St Vincent's Hospital, Sydney
Alicia Cook	IHPA
Paul Csoban	Palliative Care
Greg Dalton	Department of Health, Victoria
Alfa D'Amato	Ministry of Health, NSW
Vera Dimitropoulos	National Centre for Classification in Health, University of Sydney
Geoffrey Donnan AO	The Florey Institute of Neuroscience and Mental Health
James Downie	Independent Hospital Pricing Authority
Stephen Duckett	Grattan Institute
Susan Dunn	Ministry of Health, NSW
Jan Erven	NSW Health
Joanne Fitzgerald	IHPA
Patrick Henry	Funding, Modelling and Analysis Health Directorate, ACT
Philip Hoyle	Northern Beaches Health Services
Yvonne Luxford	Palliative Care
Prof Richard Madden	National Centre for Classification in Health, University of Sydney
Peter Mansfield	Department of Health and Human Services, Tasmania
Jill Marcus	NSW Health

Name	Organisation
Roderick McKay	RANZCP
Jenny McNamee	AHSRI, University of Wollongong
Simon Moy	Department of Health, Victoria
Garry Pearce	HammondCare
Winston Piddington	Health Directorate, ACT
Graham Reynolds	ACT Health, Children's Health Australasia, and ANU
Sharon Smith	NSW Health

