Professional practice and innovation:

The coding masterpiece: a framework for the formal pathways and processes of health classification

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Abstract

This article empirically defines the formal pathways and processes that enable and frame hospital clinical classification in an activity-based funding environment. These structured actions include: learning and training; abstracting; clinical knowledge locating and confirming; coder-doctor communication; coder-coder communication; the complicated sub-set of code searching and decision-making processes that constitute practical clinical 'coding'; allocation to diagnosis-related groups; confirmation of financial reimbursement; auditing; and quality management practices to ensure the integrity of the multiple outputs and outcomes of clinical coding. An analogy of these complex, exacting, and knowledge-dense work practices is made with the 20th century *avant-garde* art movement of Cubism: the creation of Pablo Picasso's *The three musicians* is used as a metaphor for clinical/health classification work.

Keywords (MeSH): *Activity-based funding; Casemix; Clinical Audit; Clinical Coding; Diagnosis-Related Groups; Health information management; Health Classification*

Cubism and clinical coding, in context

The famous Spanish artist and sculptor, Pablo Picasso, painted his masterpiece of *The three musicians* in 1921 (Jaffé 1988)[1]. A study of this collage and oil painting will tell the art novice a great deal more about the artist, his art, and why his work is of such enduring beauty and value.

Picasso's skills were recognised, he had access to the right tools and equipment, and he had support and encouragement from mentors and industry experts. Picasso accepted critique of his work; he tried new theories, and worked continuously at expanding his knowledge and skills bases.

While Picasso's work was ground-breaking and unique, how could it possibly relate to a set of five books that more reasonably resemble a dictionary? Here is the solution: Picasso was a driving force in pioneering Cubism, a form of art in which objects are broken up, analysed, and re-assembled in an abstracted form (Dempsey 2002). The notion or idea of 'the source or reference' was important to Picasso (Baldassari & Saunier 2008: 23). His work was influenced by objectivity, and he used the technique of fragmentation which allowed him to get closer to his object from multiple viewpoints, and to re-create reality (Jaffe 1988; Dempsey 2002). Picasso's images are all-encompassing, representing 'what is known about an object rather than what can be seen from a fixed point and at one time' (Dempsey 2002: 85). In Synthetic Cubism, particularly, 'large simple planes' are 'repeatedly transformed into objective elements', enabling their significance to become 'clearly legible' (Jaffé 1988: 84).

In this article we aim to create the potential Cubism-inspired coding masterpiece that, driven by teams of clinical coders, will add true value to organisations and, ultimately, the care of patients. In essence, we will describe the framework for the complete, formal pathways and processes of health classification.

There are many factors that are essential to making a good coder and, in the instance of medium- and large-size hospitals, a good coding team. These include:

- a culture that promotes learning (e.g. as described by Senge 1992; and Senge et al.1994) and incorporates internal and external education and training
- formal coder-doctor and coder-coder partnerships and communications
- a sound and current clinical knowledge-base, and the skills to locate and confirm clinical information
- the ability to undertake accurate and comprehensive abstracting, and the high-level code searching and decision-making processes that constitute practical clinical 'coding'
- an understanding of diagnosis-related groups (DRGs) and cost-weights and the ability to accurately allocate cases to DRGs and confirm financial reimbursement
- the knowledge, skills and time to audit, and the courage to have one's coding work audited by others
- formal quality management practices to ensure the integrity of the multiple outputs of clinical coding, and the accurate and ethical analysis, reporting and implementation of audit outcomes
- supportive and interested clinicians and hospital management.

We will delve into these areas and provide hospitals with some ideas for building a coding masterpiece, or perhaps pinpoint reasons why coders are creating an

1 Picasso painted two versions: the earlier one is held in the Museum of Modern Art in New York and regarded as 'the culmination of his Cubist style' (Jaffé 1988:21). This first version is characterised by 'tightly-knit composition and … classical clarity, … striking conciseness' (Jaffé 1988: 21). In the other, held in the Philadelphia Museum of Art and considered by critics to be 'more showy and richly articulated' but less concise than the first, Picasso has changed the places of two of the three key figures (Jaffé 1988: 21).

image that more resembles a 'stick man' than a Picasso painting.

Coding and casemix

Since the early 1990s, health system reforms to improve technical efficiency in hospitals have generated a major, ongoing focus on clinical coding; the most recent of these is the policy of the Australian national government for the implementation of activity-based funding (Council of Australian Governments 2010). One successful approach uses casemix, via diagnosis related groups (DRGs): this enables measurement of the mix and severity of inpatient cases that a hospital treats, and makes hospitals accountable for variations in the efficiencies of both their service provision and their treatment of similar patients (Swerissen & Duckett 2002; Duckett 2007). As there is a critical relationship between clinical coding (disease and procedure classification), case complexity, and the financial cost of the episode of care, the model depends upon accurate, comprehensive and timely clinical coding, and its surrounding systems and processes (Cheng, Shepheard & Robinson 2005). This is relevant also to private sector hospitals which use DRGs for reporting Hospital Casemix Protocol (HCP) data and for associated justification of revenues from health insurance funds (e.g. Szakiel 2010).

Casemix-based funding has consequently been an important driver of change in clinical coding and has raised the profile of Health Information Managers and Clinical Coders whilst simultaneously imposing a very high degree of accountability for coding accuracy, and for increased levels of coder productivity and efficiency (Robinson & Shepheard 2003). By way of example, the state of Victoria has progressively refined its public hospital casemix-based funding system since its 1 July 1993 implementation; its operation is carefully monitored by the Victorian Government's formal, state-wide external audit program which is managed by the Department of Health and accountable ultimately to the state's Auditor-General (Shepheard & Moore 2010).

Auditing

Auditing requires a higher-level skill- and knowledge-set than coding and is used to monitor and improve the coding processes. Whilst regional/area and state level audits provide useful benchmarking data, there is also evidence in the health information management profession's literature of the value of regular internal coding audits for enhancing the hospitals' administrative and clinical documentation, clinical coding, and financial outcomes (Shepheard & Robinson 2005; Cheng, Shepheard & Robinson 2005; Cheng, Gilchrist & Robinson 2007; Cheng, Gilchrist, Robinson & Paul 2009; Krypuy & McCormack 2006; Uzkuraitis, Hastings & Torney 2010). Formally documented audit plans are an excellent way for the auditor to ensure that his or her auditing is structured, planned, regular and targeted (Cheng et al. 2010). It is worth noting that, especially in the early years, casemix-funding/activity-based funding environments tend to encourage coding audits with a predominantly financial focus; potentially, this can also raise ethical dilemmas for coders so management support to the individual coder, by their departmental head and coding manager, is crucial (Shepheard 2003; Robinson et al. 1998).

The coding environment

Many organisational factors in the coding workplace, including a culture that promotes learning, education, training and resource supports, impact directly upon the quality of the coding (Santos et al. 2008; see also, for example: Bloor 1999; Senge 1992; Senge et al. 1994). Similarly, factors beyond the control of the coding unit, such as the clinical recording methodology (e.g. source-oriented and/or critical pathway), directly affect the coders' work (Cameron & Robinson 2004).

The formal pathways and processes that enable and frame hospital health/clinical classification in an activity-based funding environment are complicated and far-reaching. Consequently, we invite coders and their managers to reconsider their work and systems by observing the entire set of classification processes from the Cubist perspective.

The multiple components of classification work in hospitals

A learning environment

A good coder does not simply 'appear'. Just as Picasso started off drawing basic images, new coders have often only been exposed to short computer-generated scenarios where the documentation is perfect. The reality of coding in the hospital system is much more complicated than many new coders could ever imagine: messy and illegible handwriting; pages out–of-order or lost; incomplete or insufficient documentation; missing medical records; inaccessible electronic documentation and test and investigation results; and the pressures of immovable coding deadlines. These all make for an exceptionally overwhelming introduction to the real world of clinical coding.

New coders need to be nurtured and mentored through a structured training period. This nurturing process should also be provided for experienced coders who are new to the organisation and to casemix-based funding environments. The input of coding managers, coding educators and other experienced coders is vital in this induction period. Indeed, it is important for managers to be aware of the many organisational factors, and differing documentation methodologies, that impact upon the quality of coders' work.

Each new coder needs to have a clear understanding of coding processes, systems, expectations, medical record structure, and coding environment before they tackle the coding independently. It is essential that the new coder is supported in developing their skills and in learning the

processes that will allow them to achieve the expectations placed upon them. Just as an eraser is an important tool to an artist, the early erasure of bad coding habits and inconsistencies is important to the development of new coders.

Applying the concepts of Cubism to clinical coding

Reflecting back to Cubism and now that we have the developing 'coding artist', we need to break-up, analyse and re-assemble our subject, this being an episode of care. There are three essential steps in this process.

Step 1. Breaking up the episode of care so that an organisation's Patient Administration System matches the content of the medical record being coded:

- Verify the correct patient's medical record.
- Check that the admission and discharge dates are correct, as well as administrative data fields such as 'admission source' and 'discharge destination'.
- Confirm that the demographic details relating to the patient are correct.
- Enter or check an admission weight, if applicable.

Step 2. Analyse and extract from the episode the relevant information that will be used in the coding process:

- Read carefully the discharge summary, Emergency Department notes, progress notes, anaesthetic charts, operation reports, referrals, correspondence, imaging and pathology results, and Intensive Care Unit (ICU) chart.
- Document the diagnoses, complications and procedures as they appear, making note of dates and times. Make note of ICU and ventilation hours.
- Highlight inconsistencies or unclear documentation that may require further follow-up.

Step 3. Re-assemble the subject through the use of codes:

- Assign diagnosis and procedure codes from the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) and the Australian Classification of Health Interventions (ACHI), while also complying with the Australian Coding Standards (ACS) and national or state coding advice.
- Add information such as ICU and ventilation hours to the coding screen.
- Assign 'condition onset' flags or prefixes, as appropriate.
- Ensure that the subject patient has been appropriately represented by the codes that have been assigned.
- Group, and then verify, the DRG.

Providing coders with an abstracting tool that allows them to break-up, analyse and re-assemble each admission is a good way to develop sound abstracting techniques. The above systematic steps are the foundation for excellent coding and for preparing the groundwork for future career opportunities within the coding arena. If coders focus only on the codes and ignore the administrative elements and limit their scrutiny to the coding books, the end result is de-valued. Such a narrow focus can lead to incorrect DRGs and, therefore, data that have less value to the organisation.

A structured training plan

Coder training will not be successful without a structured training plan. A good training plan involves pacing the new coder so that s/he works systematically through the clinical specialties, one at a time and starting with the most basic. This gives the coder the opportunity to become familiar with the codes through repetition and review and, therefore, provides reinforcement of key concepts. This will encourage and equip the coder to develop the ability to work autonomously, to problem-solve, and to know when it is necessary to ask questions. Using a process such as the structured training plan allows new coders to experience a sense of achievement and enables them to contribute positively to the team, through achieving a reasonably productive coding throughput, as well as consolidating skills learnt.

New coders also need consistency from their trainer. Coding is not always 'black and white'; indeed, it can be a very grey area and, although we all would like to think that given the same clinical details every coder would generate the same codes, quite often one coder's interpretation of a clinical event, or of the Australian Coding Standards, may differ from that of their colleagues. Whilst coders with differing interpretations could potentially argue a case on their code selection and on what is 'more' right or wrong, confusing a new coder through having too many chiefs could delay the coder reaching their potential. Coding trainers should have confidence in their own knowledge. They should be experienced, and have an excellent understanding of the abstracting process, casemix structure and processes, funding models, and DRGs.

Clinical knowledge

It is also important for the coding trainer and coding manager to encourage coders to find out more information about the diseases and procedures that they are coding. They need to be able to differentiate, for example, between what is a symptom of a condition and what is separate from the condition, or a new finding. Coders need immediate access to reliable clinical resources such as medical dictionaries, textbooks, and current, independent pharmaceutical reference tools. Coding is a highly professional activity that relies upon sound clinical knowledge; therefore coders should avoid unauthorised and unreliable lay 'resources'.

It is salutary to remember that over-coding is like making too many strokes with the paint brush: it just makes for a complicated mess and hides the true image! Therefore, no coder can ever have too much clinical knowledge.

Coder-coder communication

Coding managers need to be aware that some coders gain a great deal from the ability to consult with coder

colleagues, either formally through scheduled meetings and round-table coding quality activities, or informally for coding-related discussion and advice. They also like to have good working environments located close to their managers (see Santos et al. 2008).

Auditing

Auditing (both internal and external) is the best justification that Health Information Managers (HIMs) and coders can give to themselves, their managers, their hospital executive teams, and the government bodies, to demonstrate that coding work should be valued.

The audit allows the coding to be checked and verified and, quite frankly, to complete the process of creating a masterpiece! Without auditing, the work of coders can never be understood, respected, promoted or valued.

Because auditing is a higher-level skill, by the time the new coder is ready to work on or undertake an internal audit s/he will have spent over twelve months full-time equivalent in the job and gained considerable experience, knowledge, and confidence. It is at this time that the new coder will again start to learn at a rapid rate. It is amazing how much can be learnt from auditing, through having the time and space to critique others' work and to understand their thought processes, and to re-familiarise with infrequently used standards. Coders learn patience when auditing because auditors do not necessarily find code changes. Coders are also often much more thorough when they are reviewing the coded work of others. It is important to be aware that it is quite confronting for a coder to have to give a medical record back to their coding manager with a code change. It is extremely important for the coder who is auditing to learn how to present the evidence that fully justifies the recommended changes. And it does feel good, as a new auditor, to know that not all coders are 'perfect' and even 'super-hero' coding managers can be prone to having a 'mental blank' here and there!

Audit plans

The audit plan is an excellent way for the auditor to build in a structured, regular, targeted audit program. It is an essential part of the Quality Plan of the Health/Clinical Information Service, and is a valuable management resource to help in the allocation of staffing to allow for auditing to occur. It is very easy for organisations to determine where coders have issues and to develop an audit plan accordingly. It also helps to identify clinical documentation deficiencies and, in some states, audits will be selected and targeted to ensure that the revenue is optimised. Random rather than targeted auditing is also a very valuable and highly recommended tool, especially when determining what type(s) of targeted audits should ideally be included in the audit plan. Audit plans should always be reviewed at least every 12 months. Make the audit plan small, flexible and achievable. It is also necessary to ensure that the sample is representative, and the sample size statistically appropriate.

Documenting the audit activity

It is also exceptionally important to document all audit activity. Some hospitals are sufficiently fortunate to have their own audit databases. In those sites that do not have access to a database, a basic spreadsheet is adequate. Coding managers should provide their Health/Clinical Information Service manager with half-yearly or quarterly audit reports, and provide hospital executive teams with audit reports, at a minimum, annually; these should contain evidence of all audit activity and resultant coder and organisational learning.

Coding managers who are not part of a quality-driven organisation will invariably struggle to get support for an audit plan. Auditing is very resource intensive. To their ultimate detriment, some organisations do not value coding or coding audits as strongly as others. In those organisations where managers encourage coding audit programs, these ensure that the coding masterpiece is created to the highest possible standard, and that the data produced by this masterpiece are of real value to the organisation. Those organisations without such plans produce poor quality data and will not get the true benefit of an audited end-product, regardless of experience and skill-levels of their coders.

Auditing can be enjoyable

Most importantly, coding managers and educators must learn to make auditing fun. This means being sensitive to mistakes and not 'putting-down' or criticising the coders. Whilst not detracting from the importance and seriousness of the need for consistent, good quality coding-related work, it is important to recognise that no-one is perfect. It is important also to praise good quality coding, to be light-hearted, and to encourage positive and productive discussion. The more auditing that an organisation undertakes, the brighter and more vivacious the masterpiece will be.

Clinician-coder partnerships

Another great value-adding strategy used in many hospitals is the development of clinical partnerships. This is where coders/HIMs are assigned a clinical area or unit for a 12-month period or longer. They are responsible for the audits, clinical and management research requests, coder education, and building of strong and mutually supportive relationships within their specialty. This is a great way for coders to be experts in coding as well as to create productive and effective working relationships with the clinicians in these areas. Such a program brings enormous value and depth to the quality of the coding, and also provides an environment in which the coders establish an excellent rapport with the clinical staff. We encourage all hospitals to empower their coders to become responsible for the auditing of a clinical area.

Grouping

Just as a frame is an effective mechanism for keeping a piece of art safe and neat, and for allowing it to be hung

THE EXHIBITION

Welcome, ladies and gentleman, to the unveiling of the coding masterpiece!

Firstly, I would like to thank all clinicians and hospital managers who are attending this exhibition. It delights me to know that you are interested in investing and supporting the coding masterpiece that will be presented here to you today.

Unlike when you buy your Picasso and display it on the wall, today when you purchase this coding masterpiece, the investment you will receive is not so much visual but more in the form of a partnership with the HIMs and coding staff and, therefore, with the patients.

The investments (outlays) required to purchase such a masterpiece include, but are not limited to:

- *the production of data that have real value to your organisation*
- *a commitment to a hospital-wide clinician education program on good documentation, coding, and casemix*
- *a commitment to regular documentation audits completed by clinical staff and supported by HIMs, and focusing on the clinical content of the medical record*
- *a commitment by clinicians to a coding query process to confirm ambiguous documentation, and to clarify inconsistencies in the documentation*
- *a process for the completion of discharge summaries, in line with Coding Standards which include the documentation of a clear Principal Diagnosis*
- *support for HIM/coding teams to ensure adequate professional, trained staffing to complete the coding audit plan and other quality management activities*
- *support to HIMs and coders for regular attendance at education sessions including coding-related seminars and conferences*
- *support for administration staff to receive appropriate training in the Patient Administration Systems, and in accurate data entry*
- *HIM/coder input when designing and implementing all aspects of the electronic health record (EHR) documentation.*

So, ladies and gentlemen, what will you get for your dollar?

The investment in the coding team has benefits for the whole hospital:

- *quality documentation and, therefore, safer patient care*
- *quality data that can be produced for clinical research*
- *quality data that can be produced for hospital activity analysis and to measure key performance indicators*
- *an audit plan and quality activities that can be used for the development of staff, processes and learning, and for hospital accreditation purposes*
- *a motivated and driven HIM/coding team whose members are well informed about current coding developments and data production*
- *sound electronic health records that will support data collection, revenue generation, legal requirements, and safe and ethical patient care*
- *revenue optimisation (for casemix-funded hospitals)*
- *better patient outcomes for your hospital, state and the entire Commonwealth.*

Before we progress to the final proceedings of today's auction, ladies and gentlemen, I ask you to consider if you would like to be part of an organisation that produces cheap and poor quality data, or are you willing to invest wholly in the coding masterpiece that you see here today?

I remind you that this masterpiece has many value-adding elements that make it well worth your investment:

- *a commitment to teaching and mentoring coders (skilful coders and loyal staff members who enjoy their workplace, leading therefore to good staff retention rates)*
- *the use of sound abstracting techniques (developed from the Cubism philosophy for coding: break-up, analyse and extract our subject before we reconstruct into ICD-10-AM and ACHI codes) (body)*
- *audit plans and quality-driven HIMs and coders (shine and buff element)*
- *clearly understood, accurate and validated DRGs (your purchase today comes fully framed).*

Now it is time to start the auction! Do I have any bids?

and displayed correctly, DRGs frame our coded episodes. DRGs add value and usefulness to the coding in many ways, including allowing comparison of treatments for like-patients within different organisations, identifying treatment trends, identifying the types of patients that an organisation treats, and providing data for projects involving retrospective research and for health service planning.

Those who have completed their coding training and early employment in Victoria have some advantage with regard to the practical understanding and applications of DRGs and cost-weights. It is important for coding managers to be aware that not all coders in all states and territories have the same understanding, or place a similar importance on the DRG. One reason for this may be the above-mentioned casemix-based funding system that has been operating in the Victorian public sector for almost two decades. Similarly, many private hospitals in Australia operate on a casemix-related system for providing funding justification to health insurance funds. If a hospital is not casemix-funded there is no funding implication. If the coder is not 'in-tune' with the DRG, then it is possible that whilst creating the story of their patient in codes, there are other deficiencies that could affect the value of the coding before the DRG has even been assigned. These deficiencies could be that the coder has not verified critical data elements such as the correct admission and discharge dates for the patient, and their gender and age; for example if the patient was an overnight stay for a colonoscopy, and the discharge date was incorrectly reported as the same date as the admission, this would affect the DRG regardless of whether the coding was correct. Alternatively, if the data element of 'discharge destination' was incorrect, coders may find themselves in a DRG that assumes the patient went home instead of, for example, being transferred to another acute care facility.

Grouping is the last step in the coding process, and normally the coder would code and then automatically go straight to the DRG to ensure that the process is correctly followed; this step is not as much a part of the systematic coding ritual for some coders who work in hospitals which are not funded according to their casemix. For the coder in a casemix-based funding environment, the DRG is akin to the 6th book in the set of coding books. This does not mean that coders who are not as familiar with DRGs are not good coders, but it could be that in some instances the masterpiece might just be missing its master!

Understanding DRGs

Regardless of the financial structure and funding mechanisms of the hospital, where a coder is without an understanding of DRGs, and of how to identify and interpret the complications, co-morbidities and other administrative items that affect a DRG, the coding will lose its value.

For those who work in a casemix environment, DRGs are very important and there is an incentive for scrutinising the DRG to ensure it is correct. In a non-casemix funded environment there is less incentive to undertake this scrutiny as there are potentially no financial benefits associated with the effort. There is also likely to be a smaller resource allocation to the coding team and as all of these tasks require time, energy and therefore money, it may not be high on the list of priorities to enforce this analysis.

Regardless of the status of casemix- and other activity-based funding models, there are sound reasons for convincing the management of a non-casemix funded hospital that there is no reason why they should not be as familiar with DRGs and cost-weights as casemix funded hospitals; ultimately, this DRG still makes its way to the Commonwealth and is used for further health planning, resource allocation and health funding. In considering the reality that coding is undertaken to improve the care of the patients, the community and for future generations, then without an accurate DRG (and, therefore, accurate coding and data entry) all HIMs/coders are potentially de-valuing their work and threatening the health and health financing outcomes for those around us.

We encourage all coders in all organisations to ensure that the masterpiece is framed, and polished-off with the correct DRG.

Finale: the exhibition

Now that we have the coding masterpiece it is time for the exhibition. We only need to find an investor, someone who sees value in what has been created, as with Picasso and his Cubism-inspired art pieces ...

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