



White Paper

Clinical Coding

A comparison of CCSD and OPCS Procedure Classifications and an assessment of the mapping challenges.

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1.0 Introduction

In the light of the Competition & Markets Authority (CMA) final report “Private healthcare market Investigation”, 2nd April 2014, it is now apparent providers in the private healthcare sector will have to adopt a dual currency model for the recording of their treatment activities: one for clinical purposes and the other for commercial.

This means that in addition to the existing Clinical Coding and Schedule Development Group (CCSD) they will have to routinely adopt the Office of Population Census and Surveys (OPCS) coding classification by April 2019¹.

The requirement for capture of OPCS codes within the sector exists today. Records for NHS patients treated within private hospitals must be coded to OPCS standards.

Furthermore, the analysis and subsequent publication of clinical activity and quality indicators for the private sector hospitals by PHIN² is to the OPCS standard. However, as such activity was typically only captured and recorded using the CCSD classification; the reported OPCS codes are derived from a mapping between those classifications.

Any mapping is by definition a compromise. If there were a simple like-for-like translation between the two coding systems then one of them would become redundant. Healthcode’s mapping protocol was developed and is maintained by expert qualified clinical coders with extensive experience of both the NHS and private sectors. It is as good as it realistically can be.

In our experience, there is much confusion concerning the differences between the OPCS and CCSD coding systems. OPCS is a clinical classification designed and optimised for clinical coding purposes. CCSD is a classification primarily designed and optimised for reimbursement coding purposes. Throughout this paper and analysis it is important these contrasting fundamental objectives are understood because it is all too easy to be distracted into critiquing the classifications rather than exploring the practical challenges of mapping between the two.

This document is intended to explain the two coding systems and clarify the mapping issues.

¹ “We concluded, therefore, that it was not necessary for the effectiveness of our remedy for the industry to change its billing system but only for the hospitals to pro-vide procedure coding on the same basis as the NHS, ie OPCS coding, and have, as a result, removed the requirement on the insurers to transition to the OPCS system. “

² Private Healthcare Information Network (www.phin.org.uk)

2.0 OPCS

OPCS is used in the NHS to capture procedures carried out on patients. The codes are applied by trained clinical coders because the NHS rules and conventions around the selection of the codes are complex but of course the coded data can only be as good as the source information provided by the responsible clinician.

OPCS is described as: ‘a statistical classification for clinical coding of interventions and procedures undertaken in the NHS reflecting current clinical practice. OPCS-4 is an approved NHS Fundamental Information Standard.’³ The clinical classification OPCS-4 is mandatory for Admitted Patient Care Commissioning Data Sets (CDS) in the NHS.

As a clinical classification OPCS is broadly structured by dividing the body into systems, then organs and then (within an organ) a specific operation or intervention. The operations and interventions are usually listed in descending order of complexity e.g. removal, then repair, then aspiration or manipulation and are generally sequenced in a way which reflects their comparative significance in terms of resource use.

There are currently over 6,000 codes in OPCS-4.6. These cover interventions, surgical procedures, diagnostic imaging, testing, rehabilitation, high cost drugs and methods of carrying out procedures such as approach codes (for use where the approach is unusual for the procedure being carried out).

Generally OPCS provides a great deal of specificity around the actual procedure. For instance, the addition of a code to the ‘main procedure code’ for the type of stent/ stents used in endovascular surgery, where it is possible to specify the number of stents placed and whether they are drug-eluting, metallic, plastic, or stent grafts such as a fenestrated stent graft. This classification also requires laterality to be recorded as a separate code, where appropriate. All of this ‘extra detail’ means more codes are used in OPCS to encompass a procedure to comply with NHS standards than would be the case with CCSD.

A true clinical classification must enable users to code current procedures and those which might be developed in the future which means it has to have a structural mechanism which can deliver this capability. In OPCS this is achieved by means of what is called the residual category which exists in all categories where the category has been split into multiple individual codes.

³ Clinical Coding Instruction Manual OPCS-4. Strictly we should refer consistently as OPCS-4 but for readability this has been shortened to OPCS within this paper. The current version is OPCS-4.6 and OPCS-4.7 will come into effect from 1st April 2014.

An example is:

G44 Other therapeutic fiberoptic operations on upper gastrointestinal tract

- ⇒ G44.1 Fiberoptic endoscopic insertion of prosthesis into upper gastrointestinal tract
- ⇒ G44.2 Fiberoptic endoscopic removal of foreign body from upper gastrointestinal tract
- ⇒ G44.3 Fiberoptic dilation of upper gastrointestinal tract NEC
- ⇒ G44.4 Fiberoptic endoscopic reduction of intussusception of gastroenterostomy
- ⇒ G44.5 Fiberoptic endoscopic percutaneous insertion of gastrostomy
- ⇒ G44.6 Fiberoptic pressure controlled balloon dilation of lower oesophageal sphincter
- ⇒ G44.7 Fiberoptic endoscopic removal of gastrostomy tube
- ⇒ G44.8 Other specified
- ⇒ G44.9 Unspecified

For the procedure of a fiberoptic endoscopic Botox injection into the oesophagus, the appropriate code would be G44.8 which enables the procedure to be coded appropriately in the absence of a specific individual code. When new or uncommon procedures can be coded correctly, the system allows meaningful analysis of the data and ensures correct tariff is applied to the procedure. If there is a significant use of the .8 codes, this acts as a flag to the administrators of the classification of a need for new codes within this category. The same principle is applied by the World Health Organisation (WHO) for ICD-10.

However, in some chapters the hierarchy principle is either not applicable or not as evident as it should be because of capacity issues for new surgical interventions. Here further revisions have created extended categories where the original category has been filled. This means that in order to use OPCS accurately it is crucial to refer to the Index.

3.0 CCSD

This schedule was originally formed to oversee the improvement of coding standards for the private healthcare sector, providing procedure codes and narratives to reflect current medical practice.

The CCSD Schedule is structured into 19 chapters by anatomical site or treatment. There are over 2,070 codes covering the majority of procedures typically performed in private practice.

In order to maintain the integrity of the CCSD Schedule, any amendments that may include new procedure codes, narrative changes or code inactivations are released on a monthly basis.⁴

CCSD was based originally on OPCS codes but in order to simplify the use of the schedule by clinicians the number of codes was cut and the rules and conventions that applied to the use of the OPCS classifications were reduced.

CCSD cannot be considered a true classification from a clinical perspective as there is no mechanism by which a procedure, which is not contained in the list of codes, might safely be coded and understood by remote users of the data⁵.

Of course over time new codes are applied for and added but there is no immediate way of obtaining a new procedure code. Generally, codes for new or uncommon procedures are either selected because they most closely resemble the procedure carried out, or more than one code may be used to try to capture procedure complexity. This allows the billing for the procedure to be completed but not comprehensive meaningful clinical analysis of data.

A more recent innovation is the ISC Diagnostic Tests Schedule, a more transparent and standardised mechanism for the coding and reimbursement of diagnostic tests in the private sector which mirrors the intention of the U Chapter in OPCS. A new diagnostic schedule was introduced in 2013 and a further diagnostic imaging schedule was released early 2014.

⁴ CCSD Web site (www.ccsd.org.uk)

⁵ This is where the residual category applies in OPCS and users of the data at least have a code from the correct category but will also know that it represents a procedure not specifically listed. It will also be true that much analysis will be done at 3 character level and it means the procedure coded at .8 will be correctly included.

As mentioned above, CCSD has no in-built mechanism to enable users to code new or uncommon procedures where there is no exact description of the procedure carried out. The mechanism that OPCS uses is the 'Other specified' category and this code is present for most OPCS categories at .8.

A simple, non-clinical example of how this works is if it was necessary to classify people by the colour of their hair:

Category

People by hair colour

- ⇒ AA 10.1 Black hair
- ⇒ AA10.2 Brown hair
- ⇒ AA10.3 Blond hair
- ⇒ AA10.4 Red hair
- ⇒ AA10.8 Other specified
- ⇒ AA10.9 Unspecified hair

If we had someone with grey hair to code they would be coded at AA10.8. CCSD does not have such a mechanism.

Another example is a biopsy of nipple. There isn't a code in CCSD with which to code this procedure and no mechanism to enable accurate reporting of the procedure.

It is also the case that scenarios exist where the patient is admitted for a non-procedural intervention such as the removal of a urinary catheter, e.g. where a patient has been admitted for a trial without catheter, to see if they can pass urine following procedures such as prostatectomy. There is no code in CCSD for removal of a urinary catheter and so a provider would need to use a code such as M4932 'Removal of suprapubic catheter', which is clearly clinically incorrect. This scenario is not intended to imply or highlight a deficiency in CCSD but rather reinforce the point that in a classification aimed around reimbursement there is little or no need for codes to cover small, simple and commercially similar procedures.

Unlike the NHS, CCSD codes in the private sector are usually supplied by the 'responsible clinician.' Although they will not get the coding right all of the time, clinicians, for the most part, can cope with CCSD coding. However, they almost certainly would not cope with OPCS without the training necessary to apply it correctly.

Interestingly, in 1991, when clinical coding became important for resource management, the lack of training for coders was identified as a crucial weakness. The NHS's response was to train Regional Coding Tutors and, as at that time there was no appropriate expertise in the NHS, a specialist American team was commissioned to do this. The US team advocated the clear principle that it is for the responsible clinician to state what was wrong with the patient and what treatment they had delivered, but it was a trained coder's job to select the code that accurately represents and reflects that information. Within the NHS, that principle holds true today. Of course, in an ideal world the process should be done collaboratively with clinicians and coders working closely together.

4.0 Issues in Mapping

The background above shows that mapping between OPCS and CCSD has challenges. OPCS has more than 6,000 codes where CCSD has around 2,070 so from the start mapping CCSD to OPCS means that there will often be many possible OPCS codes for any CCSD code.

The two systems cover substantially the same areas⁶ but often a CCSD procedure code maps to a category level in OPCS while OPCS categories are then split into codes that provide further specificity. This has happened because the two systems were developed for use in very different ways:

OPCS was developed to analyse hospital activity in order to carry out strategic and operational planning, resource use, performance management, epidemiology, and Department of Health initiatives. Only fairly recently in the history of OPCS has the coded information been grouped into Healthcare Resource Groups (HRGs) for commissioning.

The CCSD schedule was set up to allow clinicians in private practice to bill for their work in the private healthcare sector although its use is being extended in a way that mirrors many of the uses of OPCS, including Hospital Episode Statistics (HES) with the Independent Hospital Episode Statistics (IHES). The original versions of CCSD show that while adopting OPCS as a starting point, the intention was to cut down the number of codes and simplify the way they could be used.

The following example (from the current version of CCSD) illustrates the discrepancy in possible codes:

CCSD code

⇒ B3594 Plastic procedures on nipple

OPCS 4.6 code

- ⇒ B35 Operations on nipple (category heading)
- ⇒ B35.1 Transposition of nipple
- ⇒ B35.2 Excision of nipple
- ⇒ B35.3 Extirpation of lesion of nipple
- ⇒ **B35.4 Plastic operations on nipple**
- ⇒ B35.6 Eversion of nipple
- ⇒ **B35.8 Other specified operation on nipple**
- ⇒ **B35.9 Unspecified operation on nipple**
- ⇒ B36 Reconstruction of nipple and areola
- ⇒ **B36.1 Reconstruction of nipple**
- ⇒ **B36.2 Nipple sharing using other tissue**
- ⇒ **B36.3 Nipple sharing NEC**
- ⇒ B36.4 Tattooing of nipple
- ⇒ **B36.8 Other specified reconstruction of nipple and areola**
- ⇒ **B36.9 Unspecified reconstruction of nipple and areola**

All the emboldened codes could map to B3594. B3594 therefore has eight codes in its OPCS map.

⁶ As there is often confusion and debate around the scope and overlap between the respective classifications we have compiled and included a chapter-by-chapter comparison in section 6.0.

There are also issues surrounding OPCS rules and conventions which can mean one code from a main chapter is supplemented by other codes from either the same chapter, another chapter or from a supplementary chapter, (such as Chapter Y, ‘Subsidiary Classification of Methods of Operation’), in order to be valid under NHS standards. This can mean a significant number of codes need to be applied to accurately reflect in OPCS codes what can be encompassed at one CCSD code, albeit without the detail contained within the OPCS coding.

In addition, a significant number of CCSD codes simply cannot be mapped to the OPCS classification: there is a broad range of reasons for this as set out below:

Examples that illustrate this:

Code	Description	Reason
AA588	Coronary Angioplasty standby team	<i>Non-procedural (this is a record of attendance not anything carried out)</i>
G3100	Laparoscopic biliary gastric bypass	<i>Too broad a description</i>
T3930	Retroperitoneal abscess	<i>A Diagnosis, not a procedure</i>
W0950	Radical clearance of sarcoma of trunk or limbs, +/- amputation or insertion of prosthesis	<i>Description contains with / without within wording therefore doesn't exactly describe one procedure</i>
XR920	Cyst ablation under imaging control	<i>Not Map-able without a site of operation</i>

Both OPCS and CCSD are updated to cover new procedures or areas where more specificity is required: CCSD is updated monthly while OPCS is usually revised on a yearly basis, so mapping needs to take account of any changes. To address this, Healthcode adds new CCSD codes to its master tables as they are issued and new OPCS mappings to those codes are provided accordingly.

The current mapping protocol contains mapping scenarios including one-to-one maps, multiple maps containing a number of OPCS codes, and scenarios where there is no match at all. Although the first map presented is seen as a default code, such judgments in the main can only be subjective. In cases of multiple maps, a coding professional or responsible clinician would need to select the appropriate map for the procedure carried out if the data is to be ‘fit for purpose’.

The mapping that currently exists from CCSD to OPCS has been carried out applying the OPCS coding rules and conventions.

5.0 Conclusion

To reiterate, the purpose of this paper is not to evaluate and appraise the various pros and cons of the two classifications but to explore the effectiveness and limitations of mapping between them.

It is irrefutable that OPCS is a clinically richer classification and can describe procedural events in far more detail. It is equally obvious that CCSD is a reimbursement oriented classification which lacks the richness of OPCS but is easier to understand for non-medically trained staff, especially those involved in the commissioning, billing and paying of medical services. But it is more important to address the practical implications of these differences for mapping.

By definition, a mapping between disparate code sets will involve a certain level of compromise.

For 46% of the CCSD codes we are confident that a precise single (one-to-one) mapping exists so the mapping is a reliable and accurate translation between the classifications. For just over 10% of the CCSD codes there is no equivalent map. Reasons for this largely fall into two categories: there is not sufficiently specific information in the code narrative; or the CCSD code in question is not procedural demonstrated in the examples in Section 4.

This leaves around 900 codes (circa 45%) where a CCSD code will yield multiple mapping possibilities. In one extreme example (L1300 Transluminal operations on pulmonary artery) we identified 321 possible maps, including combinations, of OPCS coding which may be applicable to a single CCSD code.

The most significant challenge therefore becomes how those multiple maps, where they exist, are dealt with. The strictly correct response would be for the responsible clinician to supply both a CCSD code and select the correct map for his CCSD code. Ultimately, I would argue that is the only way absolute confidence could be maintained in the integrity of the data generated by the maps.

Mappings and software solutions can certainly massively improve the productivity, speed and access to coding but they cannot replace the coder's considered evaluation and documentation of the clinical event.

For the most part, clinicians in private practice only carry out a relatively small number of procedures in their specialty. This means for their purposes it would be viable and not too onerous to hold a list of the appropriate maps, just as many currently do. In such a scenario they would only have to refer beyond that where something unusual was carried out.

The private sector now has to accept and address the co-existence of CCSD and OPCS for all admitted patient care records. The challenge of providing comprehensive and accurate activity recording and comparability with the NHS means clinical coding must become institutionally ingrained within our business processes.

6.0 Chapter by chapter Comparison

CCSD Chapter	OPCS Chapter
<ul style="list-style-type: none"> 2. Brain, cranium and other intracranial organs 3. Spine, Spinal cord and Peripheral nerves 5. Ear Nose and Throat 8. Thorax and Inter thoracic organs 11. Abdomen (excluding urinary and reproductive organs) 17. Interventional radiology 18. Chemotherapy 	A Nervous system
<ul style="list-style-type: none"> 2. Brain, cranium and other intracranial organs 2.6 Other 6 Face, mouth, salivary and thyroid 7. Breast 8. Thoracic and intra thoracic organs 	B Endocrine system and breast
<ul style="list-style-type: none"> 4. Eye and orbital contents 	C Eye
<ul style="list-style-type: none"> 1. Investigations, simple procedures & consultation codes 5. Ear nose and throat 17. Interventional radiology 	D Ear
<ul style="list-style-type: none"> 5. Ear nose and throat 8. Thorax and intra-thoracic organs 17. Interventional radiology 	E Respiratory tract
<ul style="list-style-type: none"> 5. Ear Nose and Throat 6. Face, mouth, salivary and thyroid 17. Interventional radiology 	F Mouth
<ul style="list-style-type: none"> 1. Investigations, simple procedures & consultation codes 8. Thorax and intra-thoracic organs 10. Endoscopic GTI procedures 11. Abdomen (excluding urinary and reproductive organs) 17. Interventional radiology 	G Upper digestive tract
<ul style="list-style-type: none"> 10. Endoscopic GTI procedures 11. Abdomen (excluding urinary and reproduction organs) 17. Interventional radiology 	H Lower digestive tract
<ul style="list-style-type: none"> 10. Endoscopic GTI procedures 11. Abdomen (excluding urinary and reproductive organs) 12. Urinary system and male reproductive organs 	J Other abdominal organs
<ul style="list-style-type: none"> 1. Investigations, simple procedures & consultation codes 8. Thorax and intra-thoracic organs 17. Interventional radiology 	K Heart
<ul style="list-style-type: none"> 1. Investigations, simple procedures & consultation codes 2. Brain Cranium and other intracranial organs 8. Thorax and intra thoracic organs 9. Vascular system 11. Abdomen (excluding urinary and reproductive organs) 17. Interventional radiology 	L Arteries and veins

CCSD Chapter	OPCS Chapter
12. Urinary system and male reproductive organs 14. Female reproductive organs 17. Interventional radiology	M Urinary
12. Urinary system and male reproductive organs 17. Interventional radiology	N Male genital organs
14. Female reproductive organs 17. Interventional radiology	P Lower female genital tract
14. Female reproductive organs 17. Interventional radiology	Q Upper female genital tract
13. Pregnancy and confinement	R Female genital tract associated with pregnancy childbirth and Puerperium
15. Skin and subcutaneous tissue	S Skin
5. Ear Nose and Throat 6. Face Mouth Salivary and Thyroid 7. Breast 8. Thorax and intra thoracic organs 9. Vascular system 11. Abdomen (excluding urinary and reproductive Organs) 16. Bones, joints, connective tissue and muscle 17. Interventional radiology	T Soft tissue
<i>ISC Diagnostic Tests Schedule</i>	U Diagnostic imaging testing and Rehabilitation
2. Brain cranium and other intracranial organs 3. Spine, spinal cord and peripheral nerves 5. Ear Nose and Throat 6. Face Mouth Salivary and Thyroid 17. Interventional radiology	V Bones and joints of skull and spine
16. Bones, joints and connective tissue/ tendon muscle 17. Interventional radiology 19. Haematology	W Other bones and joints
3. Spine, spinal cord and peripheral nerves 6. Face Mouth Salivary and Thyroid 8. Thorax and intra thoracic organs 9. Vascular system 11. Abdomen (excluding urinary and reproductive organs) 12. Urinary system and male reproductive organs 14. Female reproductive organs 16. Bones, joints and connective tissue/ tendon muscle 18. Chemotherapy 19 Haematology 20. Radiology	X Miscellaneous operations
No equivalent	Y Subsidiary classification of methods of operation
No equivalent	Z Subsidiary classification of sites of operation Includes specific bones, arteries, organs. For use where the 'main' code is not site specific.

About Healthcode

Healthcode's goal is to be the knowledge source and most trusted independent expert to deliver interoperable online solutions and define industry standards for private healthcare.

Healthcode is the official UK medical bill clearing company for private healthcare. Since 2001, we have provided encrypted online systems to healthcare professionals and businesses and currently process over £2.5bn of medical invoices annually as well as clinical records for virtually every private patient in the UK.

In addition, we continue to deliver solutions to help streamline administrative processes, connect healthcare organisations and add value. Today Healthcode provides an extensive range of specific products for the private healthcare market, including practice management systems and online billing, patient membership enquiry, secure messaging and clinical coding translation tools.

Our technology is encrypted to Internet banking standards and Healthcode is trusted as the professional choice for most of the UK's private hospitals. Providing the quality tools to help you take direct control of your business and outstanding customer service make Healthcode the natural choice for specialists, medical secretaries, hospitals and insurers.

Healthcode also work closely with PHIN as part of an industry-wide initiative to capture patient level information from private hospitals and process it for benchmarking the independent sector.

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