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Accuracy of Clinical Coding for Oral and Maxillofacial Surgery Procedures

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Abstract

Clinical coding has important financial implications, and discrepancies in the assigned codes can directly affect the funding of a department and hospital. Over the last few years, numerous oversights have been noticed in the coding of oral and maxillofacial (OMF) procedures. To establish the accuracy and completeness of coding, we retrospectively analysed the records of patients during two time periods: March to May 2009 (324 patients), and January to March 2014 (200 patients). Two investigators independently collected and analysed the data to ensure accuracy and remove bias. A large proportion of operations were not assigned all the relevant codes, and only 32% - 33% were correct in both cycles. To our knowledge, this is the first reported audit of clinical coding in OMFS, and it highlights serious shortcomings that have substantial financial implications. Better input by the surgical team and improved communication between the surgical and coding departments will improve accuracy.

Introduction

Since the introduction of Payment by Results by the UK Department of Health in April 2002 healthcare providers are paid for the procedures they do instead of being provided a lump sum (1). For this to happen, treatments and care must be translated into codes. These form the basis of the Healthcare Resource Group (HRG) code, which is a nationally agreed tariff based on the Office of Population Censuses and Survey (OPCS) classification 2 and the International Statistical Classification of Diseases (ICD)(3). The OPCS system classifies surgical activity, and the ICD relates to diagnoses and coexisting conditions. Accuracy of codes is therefore essential to generate the correct payment. Inaccuracies in clinical coding in the specialties of plastic surgery, urology, and ear, nose, and throat (ENT) have been reported to have an impact on the HRG code and subsequently on the income received (4–7). Although factors such as complex anatomy, wide range of procedures, and the diverse range of diseases can potentially cause inaccuracies in clinical coding, there are only two reported studies in literature that have explored this in oral and maxillofacial surgery (OMFS)procedures (8, 9).

The aim of the audit was to determine the accuracy of the OPCS codes generated from OMFS procedures in our department, as anecdotal evidence had suggested inaccuracies that resulted in errors in payments to the department.

Material and methods

A retrospective review of all operations carried out under general anaesthetic at two time points in an OMFS department at a tertiary referral hospital was undertaken. Approval was obtained from the local Clinical Effectiveness Unit. Two cycles of operations were analysed: in the first (March to May 2009) 324 operations were assessed, and in the second (January to March 2014) 200 procedures were analysed. Operations included the full spectrum of OMFS subspecialties. Digital operative notes were obtained from the hospital's Informatics Department; these were originally recorded on the Operating Room Management Information System (ORMIS) during the procedures. Any identifiable data was removed to ensure anonymity, and the hospital number replaced with an audit number to identify the cases. OMFS dental core trainees (formerly senior house officers) systematically analysed all the operative notes under the supervision of an OMFS specialist trainee (StR) and a consultant. Codes generated by professional hospital coders using OPCS version 4.2 were cross-checked with the operative notes to determine accuracy and completeness (10). A standard of 100% accuracy and 100% completeness of generated codes were set as the gold standard. Corrected or missing codes were recorded and grouped together. To improve accuracy after the first cycle, information about the most common coding oversight was disseminated to the coders and clinicians. This took a much longer time than anticipated because of the large numbers and initial difficulties with data collection and analysis. Numerous discussions between the management and coding department resulted in the short-term placement of a dedicated procedural coder on the OMFS inpatient ward and in the dental hospital to gain a better insight into the procedures and to improve dialogue between clinicians and coders. The second cycle, which took place two years after dissemination of the original data, was consistent in terms of the time interval studied, data collection, and analysis.

Results

In the first cycle, 67.6% (219/324) of the recorded codes were correct. The second review showed no improvement inaccuracy, with 66.5% (133/200) being correct (Figure 1).
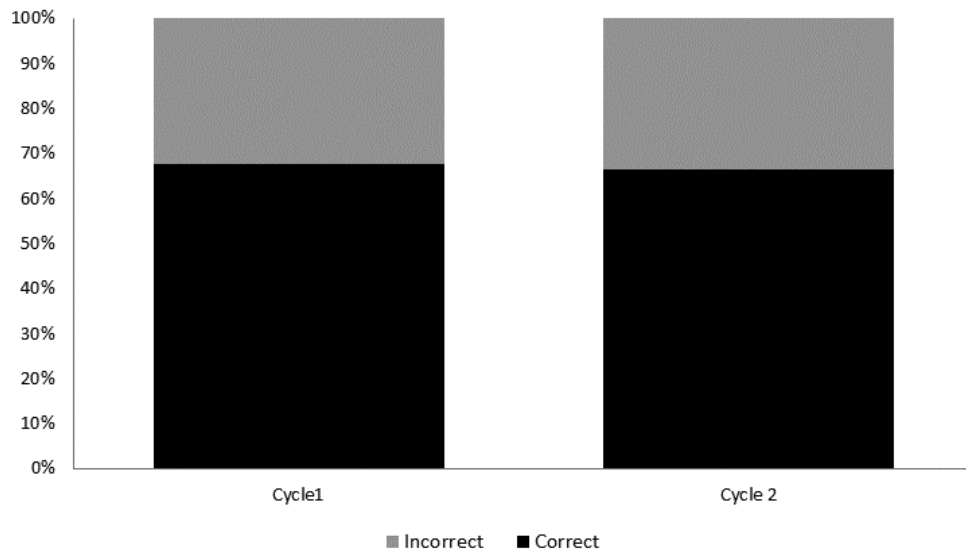
Figure 1. Percentage accuracy of clinical coding in the two cycles of the audit (cycle 1: n=320; cycle 2: n=200) (black = correct; grey = incorrect).

There was a considerable improvement in the coding of bilateral procedures: in the first cycle, 31 of 96 were correct (32.3%) and in the second, 61of 77 were correct (79.2%) (Figure 2).
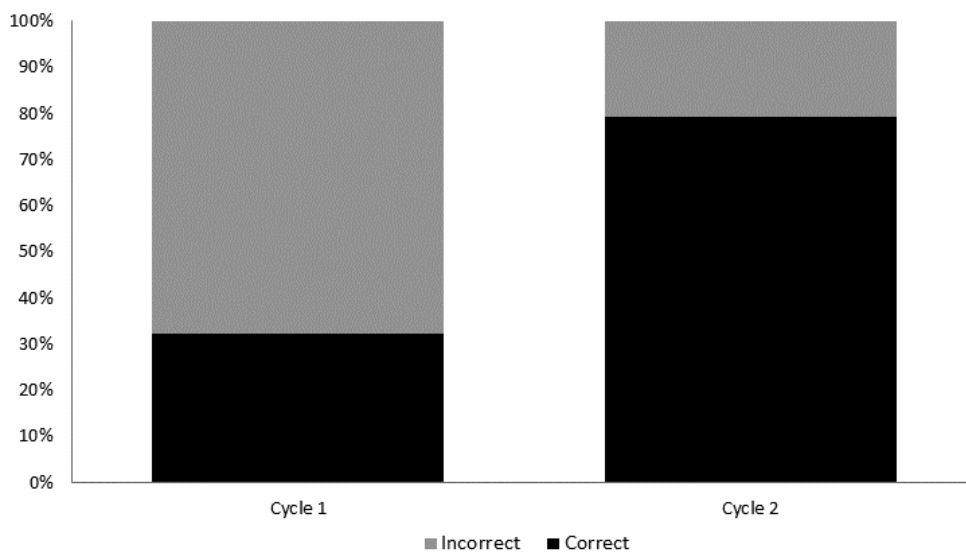

Figure 2. Percentage of correctly-coded bilateral procedures (cycle 1: n=320;cycle 2: n=200) (black = correct; grey = incorrect).

Inaccuracies appeared to be distributed across most OMFS operations (Fig. 3). The coding of dentoalveolar procedures improved, but there was no improvement in coding of trauma and oncology operations, and accuracy was considerably reduced for temporomandibular joint (TMJ) and orthognathic procedures.
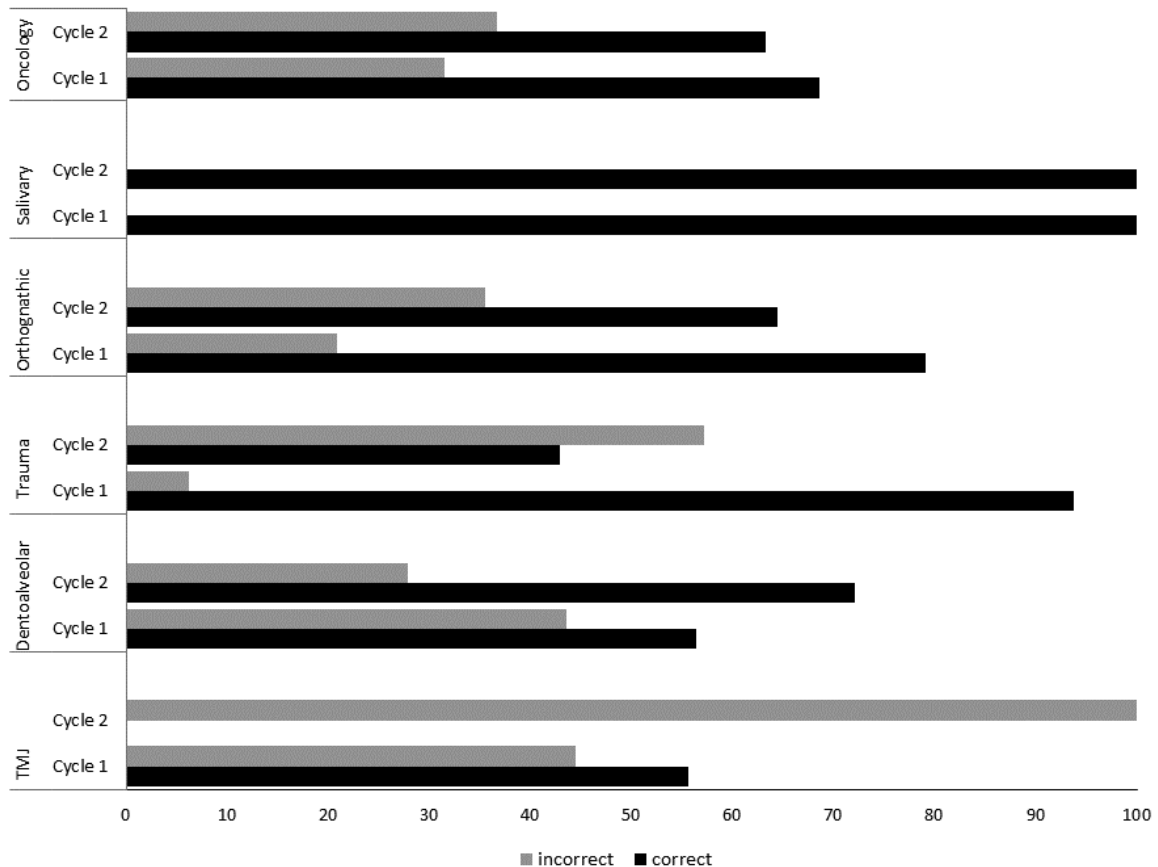
Figure 3. Percentage accuracy of clinical coding across different OMFS procedures (cycle 1: n=320; cycle 2: n=200) (black = correct; grey = incorrect).

Discussion

Coding errors are routinely seen in surgical practice, and reports of inaccuracies range from 22% to 47.7%.[4–6,8] The assignment of incorrect HRG codes affects the income received by the healthcare provider (9) and even small errors can have huge financial repercussions (Table 1). This is supported by the findings from both cycles of our audit.

Table 1- Comparison of distribution of correct clinical codes across different OMFS procedures between the two audit cycles.

	Cycle 1 %	Cycle 2 %
TMJ	55.6	0.0
Dentoalveolar	56.4	72.1
Orthognathic	93.8	42.9
Trauma	79.1	64.4
Salivary	100.0	100.0
Oncology	68.5	63.3

The audit also highlighted numerous oversights and short-comings in the OPCS and HRG systems, which form the main framework of rules and regulations for coders. The tariff set for the removal of one tooth is the same as that for a full dental clearance under general anaesthetic, which may require the removal of multiple teeth and is likely to take more time and resources. Discussions with coders showed that, unlike operations in other specialties, bilateral dental or dentoalveolar procedures, such as removal of impacted molars, are considered as single procedures and do not generate a higher tariff (11). These inconsistencies between specialties may contribute to errors in the assignment of HRG codes and result in the wrong amount being paid to the healthcare provider. ICD codes modify the tariffs set, and tariffs are higher for patients with coexisting medical conditions (Table 2).

Table 2- Comparison of clinical code related tariffs between elective and emergency OMFS procedures.

Procedure	Tariff (day case) £	Tariff (emergency) £
Simple extraction	476	993
Surgical removal of tooth	612	1469
Surgical Excision of lesion- face	546	922
Laser excision- face	1408	1802
Dental Clearance (single tooth extraction, upper, lower or full clearance)	612	1469
Suture (face)	546	929
Suture (Mouth)	612	1469

The audit did not look specifically at the recording of coexisting conditions, but revenue can potentially be lost in this area. Accurate coding also depends on the recording of detailed

histories for each admission or treatment, and written medical notes need to be clear and legible to allow coders to extract the relevant information. ORMIS allows clinicians and theatre staff to add coexisting conditions and relevant codes while writing operative notes. However, informal discussions with colleagues suggested that they were unaware of this, and those who were aware, assumed that other staff members would have filled in the information. A better understanding of the importance of clinical coding and the income it generates is needed, and this could be achieved through publications in peer-reviewed journals and locally arranged audits, or through continued professional development. The OPCS classification (formulated in 1987) requires procedures to be divided into multiple codes, which com-plicate the system and open it up to inaccuracies. Further mistakes occur because some newer procedures do not have precise codes and staff has to choose those that best describe them. Errors could also have an impact on performance league tables, as differences in clinical practice could be attributed to coding errors rather than clinical performance (6). The recording of bilateral procedures in the second cycle, which had improved by 2.5 times, suggested that the recommendations implemented after the first cycle had raised the awareness of coders. However, accuracy did not improve for most of the others, and was considerably reduced for TMJ and orthognathic procedures in the second cycle. This suggests that coders would benefit from a better understanding of the complex anatomy of the head and neck, and from the help of clinicians for more complex procedures. The lack of improvement and reduction in accuracy suggests that a single dissemination of findings is not enough, and continual dialogue between the two departments is essential. Evidence suggests that clerical workers are better at coding than clinical staff, and that partnerships between clinicians and coders improves accuracy (4,12). The appointment of a dedicated OMFS procedural coder for a short time on the OMFS ward after the first review aimed to provide coders a better insight into OMFS procedures and facilitate better communication with clinicians. However, the lack of improvement inaccuracy indicates that it was unsuccessful, possibly because the placement involved only one coder and was for a short time. A longer placement, or frequent sessions on the OMFS ward, theatres, or clinics might enable coders to learn more about the procedures. If more were encouraged to do this, information could be disseminated throughout the department. Clinicians have a critical role in ensuring that all medical records are meticulously recorded and legibly written. A collective effort by clinicians, nurses, and theatre staff to correctly describe procedures and record coexisting conditions will give the coders enough information to generate the correct HRG code for payment. Most importantly, we must ensure that the Health and Social Care

Information Centre (HSCIC) is made aware of the shortcomings in the existing OPCS classification and revenue codes, and the ambiguity concerning bilateral procedures in OMFS must be removed so that all operations are coded appropriately.

Conflict of Interest

The authors declare no conflict of interest.

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