



# Accuracy of clinical coding for procedures in oral and maxillofacial surgery

S.A. Khurram<sup>a,\*</sup>, C. Warner<sup>b,2</sup>, A.M. Henry<sup>b,3</sup>, A. Kumar<sup>b,4</sup>, R.I. Mohammed-Ali<sup>b,5</sup>

<sup>a</sup> Unit of Oral and Maxillofacial Pathology, School of Clinical Dentistry, 19 Claremont Crescent, Sheffield, S10 2TA, UK

<sup>b</sup> Department of Oral and Maxillofacial Surgery, Charles Clifford Dental Hospital, Wellesley Road, Sheffield Teaching Hospitals NHS Foundation Trust, S10 2SZ, UK

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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.

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## Introduction

Since the introduction of Payment by Results by the UK Department of Health in April 2002,<sup>1</sup> healthcare providers are paid for the procedures they do instead of being provided a lump sum. 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<sup>2</sup> and the International Statistical Classification of Diseases (ICD).<sup>3</sup> 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.<sup>4–7</sup> 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.<sup>8,9</sup>

\* Corresponding author at: Academic Clinical Lecturer, Unit of Oral and Maxillofacial Pathology, School of Clinical Dentistry, 19 Claremont Crescent, Sheffield, S10 2TA, UK, Tel.: +44 114 2717951; fax: +44 114 2717894.

E-mail addresses: [s.a.khurram@sheffield.ac.uk](mailto:s.a.khurram@sheffield.ac.uk) (S.A. Khurram), [claire.warner4@nhs.net](mailto:claire.warner4@nhs.net) (C. Warner), [amhenry84@mac.com](mailto:amhenry84@mac.com) (A.M. Henry), [anandkumar@doctors.org.uk](mailto:anandkumar@doctors.org.uk) (A. Kumar), [ricardomohammed-ali@nhs.net](mailto:ricardomohammed-ali@nhs.net) (R.I. Mohammed-Ali).

<sup>1</sup> Academic Clinical Lecturer, Unit of Oral and Maxillofacial Pathology

<sup>2</sup> Dental foundation trainee, Oral and Maxillofacial Surgery

<sup>3</sup> Senior House Officer, Oral and Maxillofacial Surgery

<sup>4</sup> Specialist Registrar, Oral and Maxillofacial Surgery

<sup>5</sup> Consultant, Oral and Maxillofacial Surgery

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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 (formally 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.<sup>10</sup> 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 in accuracy, with 66.5% (133/200) being correct (Fig. 1). 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, 61 of 77 were correct (79.2%) (Fig. 2).

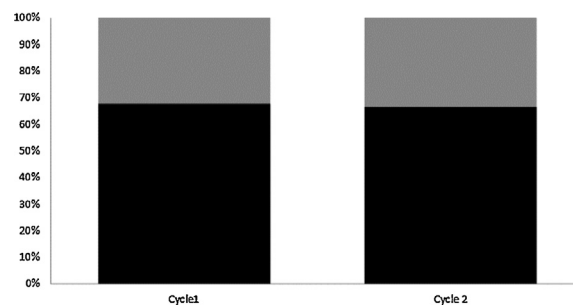


Fig. 1. Percentage accuracy of clinical coding in the two cycles of the audit (cycle 1: n=320; cycle 2: n=200) (black = correct; grey = incorrect).

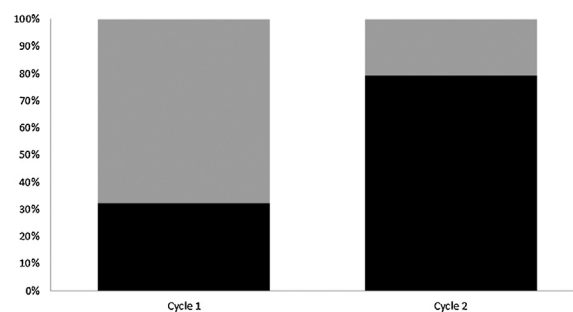


Fig. 2. Percentage of correctly-coded bilateral procedures (cycle 1: n=320; cycle 2: n=200) (black = correct; grey = incorrect).

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.

## Discussion

Coding errors are routinely seen in surgical practice, and reports of inaccuracies range from 22% to 47.7%.<sup>4–6,8</sup> The assignment of incorrect HRG codes affects the income received by the healthcare provider,<sup>9</sup> 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 tariffs related to clinical codes between elective and emergency OMFS procedures.

Procedure	Tariff (£)	
	Day case	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

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