A System of Diagnostic Codes for Dental Health Care

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Abstract

Objectives: We set out to develop and implement a system of diagnostic codes for use in the computerized management information system of the Community Dental Services of the North York Public Health Department. *Methods:* We received staff input on common diagnoses, reviewed other diagnostic systems and established criteria for an ideal coding system. The codes are consistent with the format of other classification systems used in dental management information in Canada. They were implemented in 1997–98. *Results:* We developed a system of four-digit, numeric codes for dental diagnoses. The diagnostic codes are specific at the level of the patient, consistent with current evidence on the natural history and classification of diseases, consistent with conventional measures of oral conditions, and fit the paradigm of the Canadian system of treatment codes. In the first year, 91 percent of 6,740 patients had at least one diagnosis, with a mean of 2.5 per patient. The five most common diagnoses were smooth surface caries, pit and fissure caries, calculus, teeth with deep fissures, and gingivitis. *Conclusions:* We have developed a coding system for dental diagnoses that has achieved high use and provided more accessible information on the conditions seen by staff dentists. [J Public Health Dent 1999;59(3):162-70]

Key Words: Medical records systems, computerized; diagnosis; dental records; management information systems; health services research.

Diagnosis is the act that defines dentists and physicians, setting them apart from other health care providers. In Ontario, the Regulated Health Professions Legislation reserves the use of the title "doctor" for those who communicate diagnoses. Currently, Ontario's dental licensing body, the Royal College of Dental Surgeons of Ontario (RCDSO), requires that (1):

> The diagnosis that has been made from a review of the baseline data that was collected and recorded during the clinical examination and supplemented by necessary radiographs and/or diagnostic study models and/or the results of any consultations should be recorded in the patient record.

Often, however, dental patients have been classified by the nature of their treatment rather than by their diagnosis (2), and chart reviews have shown that the diagnoses are not writ-ten in most patient records (3). Bader and Shugars (4) have stated that diagnostic codes will help dentists demonstrate their professional skills, obtain feedback on their previous treatment, provide evidence of the appropriateness of care, provide evidence to resist litigation, and advance knowledge of the benefits of care in real-life situations.

Dentistry has developed sophisticated systems for recording treatment in numeric codes to facilitate machine-readable billings to third parties (5). These systems allow for the ready transfer of billing information to third party carriers for the reimbursement of patients and providers for the costs of care. In addition, they have been used as a method to collect data on previous care (6), and large files have been analyzed to study both the pattern of care provided to insured groups and the profiles of care provided either by providers or to indi-viduals or groups of providers (7).

Managers of direct service dental programs, such as the program operated by the North York Public Health Department, collect information on the treatment provided to clients through the use of treatment codes. By collecting data on the procedure, tooth, date, location, person treated, and provider, and by then aggregating the data, managers can analyze the computerized treatment code files to compare the amount and variety (pattern) of care provided to patients in different geographic areas of their program, or by different providers. Even where evidence-based program guidelines are in place to assist the practitioners, such analyses often reveal variation in the patterns of care (8). This variation raises questions about the appropriateness of care provided. However, the appropriateness of the services recorded in large data bases cannot be addressed until the prior conditions of the patients also are described in the same or a related data base.

To date, in North York reviews to assess appropriateness of care and its technical quality have been accomplished by direct review of patients and their charts by dentist-managers. While such reviews are felt to be important to ensure quality in dental programs (9,10), they can only be applied to a sample of patients or dentists because of resource implications. The process also lacks a broad enough base to detect client group-wide trends in needs, the adequacy of the response of the delivery system, and the outcomes of the care.

A system of diagnostic codes would allow dentist-examiners to transform the written diagnoses to machine-readable data, which could be stored and analyzed, along with the subsequent treatment, to provide better information for program planning and

evaluation. In contrast to systems of treatment codes, systems of diagnostic codes are undeveloped.

In addition to the general requirements of a health services data base (11) an ideal diagnostic coding system would: translate the plain English words of the written diagnosis in the patient's chart into a specific numeric code; provide information to justify each procedure that is performed; be comprehensive to be able to include, either initially or by expansion, all conditions; be specific enough to provide both estimates of the extent and severity of diseases in the examined population in order to track disease trends (i.e., an oral disease surveillance system) and a record of the change in health status (outcomes of care) with repeated examinations; be easily implemented, by building on familiar paradigms in dental care; translate into work-load forecasts; and be generalizable to general practice and other direct service programs.

We report on our investigation and subsequent development and implementation of a system of diagnostic codes in dentistry, suitable for use in the then Community Dental Services, North York (now part of Toronto) Department of Public Health.

Review of Diagnostic Codes

One system of diagnostic codes has been developed by Orlowsky (12) in North Carolina. These codes are based on individuals' conditions, but are limited in their ability to report specific conditions for specific locations in the oral cavity.

Another set of diagnostic codes was developed in the United Kingdom (13). The set is limited to conditions seen or treated in pediatric departments. The codes represent reasons for treatment or referral rather than diagnosis of the individual. The system does not differentiate between incipient and dentinal caries, nor does it have codes to report the extent of dental caries. No codes exist for adult conditions such as periodontal diseases or other infections of the oral mucosa.

A third system is being developed by SNOMED International under contract to the American Dental Association (Cannady J, American Dental Association. Personal communication, Dec 1998). The proposed system is derived from a larger medical pathology and veterinarian process. It places the

diagnoses into organ systems or their underlying etiology. The system is alphanumeric with seven characters. When organized into a user friendly format, it will have the support of the American Dental Association.

To better understand the underlying logic of diagnostic codes in general, we also examined the diagnostic list of the universal medical and hospital care program in Ontario, the Ontario Health Insurance Plan (OHIP) (14). In that list, some codes represent systemic diseases (individuals' conditions), but others represent symptoms or signs of diseases. Thus, the OHIP diagnostic list reports individuals' conditions and justifications for actions with no apparent requirement to provide both. Codes for oral conditions are limited in number and are scattered throughout the list.

The tenth revision of the International Classification of Diseases (ICD-10) (15), and the Application of ICD-10 to Dentistry and Stomatology (ICD-DA) (16) are intended to provide a standard classification and coding system for oral conditions. ICD-10, Volume One, includes an explanatory text and a tabular, alphanumeric presentation of the classification system. The ICD-DA presents the oral diagnoses in a five-character alphanumeric format. The first three or four characters of any ICD-DA code are those of ICD-10. Where a fourth character does not exist in ICD-10 or where it is irrelevant to ICD-DA, a dummy character "X" is used. Where a fifth character is used, it is exclusive to ICD-DA to identify ICD-DA subdivisions. Where the ICD-DA identifies a complete ICD category without further subdivisions, the dummy "X" is used as the fifth character.

The Canadian System of Treatment Codes

In Canada, the Canadian Dental Association issues the CDA Uniform System of Coding and List of Services (5), which is meant to serve as the standard listing of all dentist-provided procedures and the numeric codes assigned to each. Procedures are grouped by treatment category and each category has a different leading digit, e.g., diagnostic (0xxxx), preventive (1xxxx), and so on for restorative, endodontics, periodontics, prosthodontics–removable, prosthodontics–fixed, oral and maxillofacial sur-

gery, orthodontics and adjunctive general services (9xxxx). The second digit designates the classification of the service within the category; e.g., in diagnostic services, 01xxx represents clinical examinations, 02xxx radiographs, and 04xxx tests and laboratory examinations. The third digit indicates a subclassification; e.g., for radiographic examination services, 021xx is for intraoral films and 022xx for extraoral films. The fourth digit indicates the general service title; e.g., in intraoral radiographs 0211x is for periapicals, 0213x for occlusals, and 0214x for bitewings. The last digit is used to indicate the specific service and, in some cases, quantity; e.g., among periapical radiographs 02111 represents a single film and 02112 two films. The CDA system is used by all provincial dental organizations including the Ontario Dental Association Fee Guide (17).

Methods

We first obtained information from the staff working in the dental services program at the city of North York on the conditions that they diagnose commonly. They were instructed to record their diagnoses for a period of two weeks. At a follow-up meeting they provided more than 60 diagnoses, which were ultimately reduced to 46 mutually exclusive diagnoses. These became the minimum list of conditions that the system had to accommodate.

The system was developed through a series of discussions and draft proposals that considered: the characteristics of an ideal system (described before), the capacity and format of the existing program management information systems, the paradigm of classification systems used in Canadian dentistry, the list of the 46 diagnoses supplied by the staff, conditions described in the ICD-DA classification system, and current understanding of the natural history and classification of dental conditions.

The internal contradictions within our "ideal characteristics" soon became apparent; would we base the system on person-level diagnoses, on justification of procedures, or on both, as did the OHIP system? Justification of procedure codes would have to be specific down to the tooth and perhaps the tooth surface level. In theory, they could be aggregated to provide a per-

son-level diagnosis for the conditions that were treated; but they could not record person-level conditions that require no treatment, e.g., mild fluorosis or mandibular tori.

On the other hand, a person-level set of diagnostic codes would be consistent with the legislative requirements from the RCDSO and, probably, would be shorter. However, not every service would have a specific justification and a person-level system would likely compromise the accurate quantitative estimates of the services required. For example, the person-level diagnosis of "dentinal caries" by itself would not indicate the number of restorations, and of what complexity, might be required.

Weighing the pros and cons, we elected to base the system on person-level diagnoses because we felt it was most important that the system be consistent with Ontario legislation. In this way, we felt it would be acceptable to dentists in the NYPHD, and generalizable for use in other programs in Canada.

After this decision, we returned to examine the ICD-DA system in more detail. ICD-DA codes are extensive, but the oral diseases and conditions are difficult to access because they are scattered throughout medically oriented groups. For example, periodontal conditions are located under "Diseases of the Digestive System"; other oral diseases are located under "Infectious Diseases," "Parasitic Diseases," "Diseases of the Skin," and other diagnostic groups. Also, the ICD-DA codes are not specific in reporting dental caries and periodontal diseases. For example, in caries diagnosis the ICD-DA codes differentiate between deep caries, incipient caries, and arrested caries; however, they do not differentiate between caries on primary and permanent teeth, report the number of affected teeth, report recurrent caries or report cases of failure of restorations due to caries or other reasons.

Finally, the alphanumeric system used in ICD-DA and ICD-10 is inconsistent with the logic inherent in the CDA's (5) procedure codes and we felt it would prove more difficult to implement and achieve reliability. Accordingly, we rejected using the ICD-DA system.

For the reasons of acceptability and generalizability, we chose to develop a diagnostic coding system that would

parallel the paradigm inherent in the positional digit format of the CDA system of coding diagnostic and treatment services. We reviewed the conditions and diseases listed in ICD-DA to make our system comprehensive. Where the ICD-DA nomenclature was inconsistent with current understanding of diseases, we opted for the more recent classification system. This strategy is evident in the classification of periodontal diseases where we used the definitions developed at the 1989 World Workshop (18). Where the ICD-DA system was non-specific, we sought and used other standardized criteria, e.g., the TSIF for fluorosis (19). If such criteria were lacking, we used the written criteria developed for the program's evidence-based guidelines (20). For example, the guidelines on when to replace restorations in previously restored teeth (21) were used to define the diagnostic categories of those conditions.

Results

Development. The diagnostic codes are based on a four-digit numeric coding system. The major categories, indicated by the digit in the first position, are:
0=caries,
1=conditions associated with previous restorations,
2=other conditions of hard tissues,
3=diseases of pulp and periapical tissues,
4=diseases of the gingiva and periodontium,
5=injury and conditions of external origin,
6=infectious diseases and other conditions,
7=other disorders of teeth and supporting structures, and
8=congenital malformations, dentofacial anomalies and malocclusion.

The digit in the second position indicates the classification or subcategories of the condition. For example, for caries:
01xx indicates early (white) lesion on smooth surface,
02xx indicates early (white) lesion of pit and fissure surface,
03xx indicates smooth surface enamel caries,
04xx indicates pit and fissure enamel caries,
05xx indicates smooth surface dentinal caries,
06xx indicates pit and fissure dentinal

caries,
07xx indicates root caries, and
08xx indicates arrested caries.

The third digit usually is used to indicate whether the primary [code=1] or permanent teeth [code=2] are affected for the major categories of caries, conditions associated with previously restored teeth, disorders of teeth and supporting structures, and congenital malformations, dentofacial anomalies, and malocclusion. For all other major conditions, the third digit is used to indicate a subgroup of the major category.

The fourth digit is used to indicate the extent of the condition. When applicable, the fourth digit indicates the number of teeth affected [1=one tooth, 2=two teeth, ... 9≥nine teeth]. In diseases of the gingiva and periodontium, the fourth digit is used to indicate whether the condition is localized [code=1] or generalized [code=2].

The coding system, as developed to date, along with examples for most of the major categories, are included in the Appendix. As shown, each child may have more than one diagnostic code. The system is underdeveloped in several areas such as malocclusion and tooth loss and its accompanying functional limitations; nevertheless, it allows for additional codes that can describe these conditions more completely.

Implementation. The pilot test of the system began in the fall of 1997 in the then Community Dental Services of the North York Public Health Department. Staff dentists and dental hygienists ordinarily completed a day sheet of procedure codes listing the date, patient, procedure code, tooth, and tooth surface for every service. Beginning in the fall of 1997, dentists were asked to provide one or more diagnostic codes for every examination code. To implement the change, they received early drafts of the technical report, a manual of procedures, and attended one training meeting where the manual was reviewed and the codes were explained. The staff dentists quickly adapted to the full version of the coding system. During the 1997–98 school year, the day sheets with the diagnostic codes and the other information were submitted to the main office, where they were entered into the computerized data base.

Initial Assessment. Patient and provider names were transformed

into unique numbers. The 1997–98 data base was stripped of patient and provider names, downloaded onto disk, and transferred to a computer at the Department of Community Dentistry, University of Toronto. The file was transformed from the Informix data base to a file readable in SPSS 8.0 for Windows and the frequency and types of diagnoses examined. According to the data base, North York dentists and/or dental hygienists provided dental care to 6,844 students. At least one diagnostic code was reported in the file for 6,147 subjects. The highest number of diagnostic codes for a single patient was 15.

Table 1 shows the proportion of patients with diagnostic codes, the mean number of diagnostic codes per patient, and the minimum and maximum number of diagnoses per patient. Of 4,679 students who had one or more examination procedure codes, 91.3 percent had at least one diagnostic code in the file. Of those with one or more radiographic procedure codes, the prevalence and mean numbers of diagnostic codes are slightly higher than for patients with clinical examinations.

The diagnoses were then aggregated into larger groups. Table 2 shows the counts and the frequency per 100 students of 28 of the most common grouped diagnoses among the 6,147 subjects. The five most common diagnoses were smooth surface dental caries, pit and fissure caries, calculus, teeth with deep fissures and gingivitis. Smooth surfaces and pit and fissure caries diagnoses—the first and second most common diagnoses, respectively—include the incipient caries diagnosis, which is ranked eighth on the list.

Nine conditions in the top 28 (those with a dagger) were not included in the list of 46 common diagnoses submitted by staff dentists at the start of the project. Alternately, of those 46 on the original list, four—gingival recession, juvenile periodontitis, pigmentation of the gingiva, and Lichen Planus—were not recorded for any patient during 1997–98.

Discussion

We have developed a system that allows the translation of diagnoses in dentistry into four-digit numeric codes and implemented it in the community dental services of the former

North York Public Health Department (NYPHD). During the first year of its implementation, dentists in the Community Dental Services of North York have taken up the use of diagnostic codes to a high degree. Almost 90 percent of all patients on the computer file had one or more diagnostic codes. Of

TABLE 1
Frequency of Diagnostic Codes by Type of Examination

Procedure	No. of Patients w/ Procedure	% w/ 1 or More Diagnostic Codes	Mean No. of Diagnoses/ Person	Range
Clinical examination	4,679	91.3	2.9	1–15
Radiographic examination	1,304	93.7	3.6	1–15
Any procedure	6,740	91.2	2.5	1–15

TABLE 2
Number of Cases with Diagnosis for 28 Most Common Diagnoses

Diagnosis	No. of Cases	Prevalence/ 100 Students w/1 or more Diagnoses
1. Smooth surface caries*	3,737	60.8
2. Pit and fissure caries*	2,337	38.0
3. Calculus	1,484	24.1
4. Deeply fissured teeth	1,258	20.5
5. Gingivitis	765	12.4
6. Dental plaque†	615	10.0
7. Staining of teeth†	610	9.9
8. Incipient caries	569	9.3
9. Malocclusion	468	7.6
10. Recurrent caries	356	5.8
11. Fracture/displacement of restoration†	351	5.7
12. Luxation†	147	2.4
13. Periapical abscess	141	2.3
14. Sound tooth†	135	2.2
15. Rampant caries	130	2.1
16. Arrested caries	127	2.1
17. Hypocalcification	125	2.0
18. Teeth lost (prematurely)†	106	1.7
19. Dental fluorosis	99	1.6
20. Necrosis of pulp	71	1.2
21. Retained roots†	70	1.1
22. Periapical abscess with a fistula	65	1.1
23. Acute ulcerative gingivostomatitis†	60	1.0
24. Attrition	59	1.0
25. Fractured tooth	59	1.0
26. Pulp abscess†	56	0.9
27. Delayed eruption	38	0.6
28. Pulpitis	29	0.5

*Includes incipient caries–incipient caries only is 8th on the list.
†Diagnoses not included in the original staff diagnostic list.

those without a diagnostic code, some may be patients continuing with a course of care started prior to the implementation of the diagnostic codes.

Smooth surface caries was the most common diagnosis, which seems surprising because of the shift in disease patterns to pit and fissure decay (22). However, all of the children in the clinical program have needs identified by hygienist screening teams, many have urgent needs, and most are recent immigrants from developing countries. For these children the traditional pattern of caries appears to persist.

The availability of this complete list of diagnostic codes not only may have improved the reporting of dentists, but also the identification of dental conditions. Nine conditions were not submitted initially by staff, but showed up in the reported codes. Of these, some—such as plaque and staining—might have been so common that originally they were not considered important enough to report. Others—such as luxation, premature tooth loss, retained roots, and ulcerative gingivostomatitis—are both important and more common than the dentists originally reported. The four conditions on the original list, but not diagnosed in 1997–98, could be because they occur rarely in young patients.

Until now information systems to improve the "... acquisition, processing, communication, timeliness, and clarity of valid and reliable observations..." (10) on diagnoses in dentistry have eluded the managers of the NYPHD and others. The system we outline may not be final, but demonstrates a logical approach and framework and has reached the pilot-testing stage.

We initially opted not to employ a "justification of procedure" approach to designing the diagnostic codes. Rather, we expanded a person-level system to allow specific descriptions of the extent of the condition by including, where appropriate, the numbers and type of teeth affected or whether the condition is local or general. We expect that procedures following an examination would be consistent with one or more of the diagnoses and that procedures inconsistent with any diagnoses could be readily identified. For example, procedure codes for periodontal surgery would

be consistent with a diagnosis of severe adult periodontitis, but not with mild periodontitis.

We hold that the person-level diagnoses are consistent with treating both caries and periodontal diseases as infectious for the individual (23). We expect that some person-level diagnoses would not be treated, even though the diagnosis would be valid, e.g., mild or even moderate fluorosis. This information would not be collected with a "justification for procedure" only system. Thus, person-level diagnostic codes have the advantage of serving as an epidemiologic surveillance system.

Nonetheless, if it were felt necessary in other jurisdictions to have procedure-justification codes, the relevant diagnostic code could be repeated before the recording of each procedure. In this case, a short form consisting of the first three digits could be used, thereby distinguishing the procedure-justification from the person-level codes. While we have not tested the codes to justify individual procedures, the system appears to be sufficiently flexible to be used for that purpose.

Valid data on dentists' diagnoses should improve the potential for studies in epidemiology and clinical research plus studies on the effectiveness of program planning, management, and evaluation, as well as quality assurance. As stated earlier, for epidemiologic research, the data could serve as a dental surveillance system. In the past such data might have identified earlier the trends in caries, dental fluorosis, and periodontal diseases. They should also allow the identification of co-morbidities within individuals and families. Clinical researchers would benefit from being able to identify those clients with a particular diagnosis and their outcomes (on follow-up) to assess the relative benefit of the services received. Aggregate client diagnoses should allow program managers to choose better strategies and to adjust the allocation of resources as new diagnoses are submitted. In quality assurance, the diagnoses would assist in assessing whether appropriate procedures are being applied—i.e., one would expect sealants, not restorations, in deeply fissured teeth among children with previous decay.

Further evaluation of the codes will be conducted to determine their validity. We plan to examine their agree-

ment with the diagnoses written in patient charts. The codes will be valid if the words of the diagnosis are captured precisely by the codes and all written diagnoses have a corresponding code. Studies are underway to examine whether the type services that were provided in the first year were consistent with the diagnostic codes and the program guidelines (20,21).

We welcome collaboration on the development of additional codes in the diagnostic areas that are incomplete. We feel the diagnostic codes we have developed take the process a significant step along the path to a system that can be implemented throughout dental care.

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APPENDIX: The Toronto System of Dental Diagnostic Codes

1. Each code consists of four digits.
2. The first digit indicates a main group of conditions.
3. The second digit indicates a specific category of conditions in this group.
4. The third digit:
   • in diagnostic groups 0, 1, and 7 (dental caries, conditions associated with restored teeth, and other disorders of teeth and supporting structures), the third digit specifies the type of dentition affected where 1=primary, 2=permanent;
   • in the rest of the groups the third digit specifies a subcategory of the condition.
5. Where applicable, the fourth digit indicates the extent of the condition, i.e., number of teeth or sextants affected (1=1 tooth, 1 sextant; 2=2 teeth, 2 sextants..., 9≥9 teeth).

0000 Dental caries:

0000 No caries
  0019 No caries experience in all remaining primary teeth
  0029 No caries experience in all remaining permanent teeth
0100 Early white lesion on smooth surface
  0110 Primary teeth (0111=1 tooth, 0112=2 teeth, etc.)
  0120 Permanent teeth (0121=1 tooth, 0122=2 teeth, etc.)
0200 Early lesion in pits and fissures
  0210 Primary teeth (0211=1 tooth, 0212=2 teeth, etc.)
  0220 Permanent teeth (0221=1 tooth, 0222=2 teeth, etc.)
0300 Smooth surface enamel caries, not to DEJ
  0310 Primary teeth (0311=1 tooth, 0312=2 teeth, etc.)
  0320 Permanent teeth (0321=1 tooth, 0322=2 teeth, etc.)
0400 Pit and fissure enamel caries, not to DEJ
  0410 Primary teeth (0411=1 tooth, 0412=2 teeth, etc.)
  0420 Permanent teeth (0421=1 tooth, 0422=2 teeth, etc.)
0500 Smooth surface dentinal caries, no pulpal involvement
  0510 Primary teeth (0511=1 tooth, 0512=2 teeth, etc.)
  0520 Permanent teeth (0521=1 tooth, 0522=2 teeth, etc.)
0600 Pit and fissure caries, no pulpal involvement
  0610 Primary teeth (0161=1 tooth, 0612=2 teeth, etc.)
  0620 Permanent teeth. (0621=1 tooth, 0622=2 teeth, etc.)
0700 Root caries
0800 Arrested caries
  0810 Primary teeth (0811=1 tooth, 0812=2 teeth, etc.)
  0820 Permanent teeth (0821=1 tooth, 0822=2 teeth, etc.)
0900 Rampant caries
  0910 Primary teeth
  0920 Permanent teeth

Note: Pulpal involvement is included under Diseases of Pulp and Periapical Tissues.

Example:
A child has white chalky spots on the mesial surface of tooth 36, pit and fissure incipient caries in tooth 26 and 46, and deep proximal cavity in tooth 75.
The diagnostic codes for this child would be:
  0121 (early white lesion in the smooth surface of a permanent tooth),
  0422 (pits and fissures enamel caries not

to DEJ in two permanent teeth) and,
  0511 (smooth surface dentinal caries in a deciduous tooth with no pulpal involvement).

1000 Conditions associated with previously restored teeth:

1100 Recurrent caries in a tooth filled with amalgam
  1110 Primary teeth (1111=1 tooth. 1112=2 teeth, etc.)
  1120 Permanent teeth (1121=1 tooth, 1122=2 teeth, etc.)
1200 Marginal gaps, crack or fracture of amalgam filling
  1210 Primary teeth (1211=1 tooth, 1212=2 teeth, etc.)
  1220 Permanent teeth (1221=1 tooth, 1222=2 teeth, etc.)
1300 Recurrent caries in a tooth filled with a tooth colored plastic filling
  1310 Primary teeth (1311=1 tooth, 1312=2 teeth, etc.)
  1320 Permanent teeth (1321=1 tooth, 1322=2 teeth, etc.)
1400 Marginal gaps, crack or fracture of tooth coloured plastic filling
  1410 Primary teeth (1410=1 tooth, 1412=2 teeth, etc.)
  1420 Permanent teeth (1421=1 tooth, 1422=2 teeth, etc.)
1500 Recurrent caries in a tooth restored with gold inlay or crown
  1510 Primary teeth (1521=1 tooth, 1522=2 teeth, etc.)
  1520 Permanent teeth (1521=1 tooth, 1522=2 teeth, etc.)
1600 Marginal gaps, crack, or fracture in gold restoration
  1610 Primary teeth (1611=1 tooth, 1612=2 teeth, etc.)
  1620 Permanent teeth (1621=1 tooth, 1622=2 teeth, etc.)
1700 Recurrent caries in a tooth restored with a cast or prefabricated crown
  1710 Primary teeth (1711=1 tooth, 1712=2 teeth, etc.)
  1720 Permanent teeth (1721=1 tooth, 1722=2 teeth, etc.)
1800 Displacement of a crown restoration
  1810 teeth (1811=1 tooth, 1812=2 teeth, etc.)
  1820 Permanent teeth (1821=1 tooth, 1822=2 teeth, etc.)
1900 Crack or fracture of a crown
  1910 Primary teeth (1911=1 tooth, 1912=2 teeth, etc.)
  1920 Permanent teeth (1921=1 tooth, 1922=2 teeth, etc.)
Example:
A child has a broken composite filling in tooth 63, secondary caries that exists directly adjacent to an amalgam filling in

tooth 36, and a displaced crown on tooth 85.

The diagnostic codes for this child would be:

1411 (broken "tooth-colored filling" in one deciduous tooth)

1121 (secondary caries in a permanent tooth previously filled with amalgam)

1811 (displaced crown which was placed on a deciduous tooth)

2000 Other conditions of hard tissues of the tooth:

Disturbance and abnormalities in tooth development, size or location

2110 Abnormal fissure(s) in primary teeth (2111=1 tooth, 2112=2 teeth, etc.)

2120 Abnormal fissure(s) in permanent teeth (2121=1 tooth, 2122=2 teeth, etc.)

2130 Enamel hypoplasia (2131=1 tooth, 2132=2 teeth, etc.)

2140 Hypocalcification (2141=1 tooth, 2142=2 teeth, etc.)

2150 Fused teeth (2151=1 tooth, 2152= 2 teeth, etc.)

2160 Delayed eruption (2161=1 tooth, 2162=2 teeth, etc.)

2170 Ankylosed tooth (2171=1 tooth, 2172=2 teeth, etc.)

2180 Congenitally missing tooth (2181= 1 tooth, 2182=2 teeth, etc.)

2190 Supernumerary tooth (2191=1 tooth, 2192=2 teeth, etc.)

2100 Other conditions of disturbance in tooth development, size or location, unspecified.(2101=1 tooth, 2102= 2 teeth, etc.)

2210 Attrition (2211=1 tooth, 2212= 2 teeth, etc.)

2220 Erosion (2221=1 tooth, 2222=2 teeth, etc.)

2230 Abrasion - mechanical/chemical (2231=1 tooth, 2232=2 teeth, etc.)

2300 Dental fluorosis in permanent teeth

2310 Parchment-white color 1/3 of the visible enamel surface (2311= 1 tooth, 2312=2 teeth, etc.)

2320 Parchment-white color 1/3 of the visible enamel surface, but 2/3 (2321=1 tooth, 2322=2 teeth, etc.)

2330 Parchment-white color 2/3 of enamel surface (2331=1 tooth, 2332=2 teeth, etc.).

2340 Discrete pitting and/or staining of enamel (2341=1 tooth, 2342= 2 teeth, etc.)

2400 Nonfluoride enamel opacity (2401= 1 tooth, 2402=2 teeth, etc.)

2500 Sensitive dentine (2501=1 tooth, 2512=2 teeth, etc.)

2600 Deposits on teeth

2610 Staining of teeth (2611=1 tooth,

2612=2 teeth, etc.)

2620 Pigmented film (2621=1 tooth, 2622=2 teeth, etc.)

2630 Pigmentation due to tobacco habit (2631=1 tooth, 2632=2 teeth, etc.)

2640 Dental plaque (2641=1 tooth, 2642=2 teeth, etc.)

2650 Supragingival calculus (2651= 1 tooth, 2652=2 teeth, etc.)

2660 Subgingival calculus (2661= 1 tooth, 2662=2 teeth, etc.)

2670 Other deposits on teeth, unspecified (2671=1 tooth, 2672=2 teeth, etc.)

2700 Extrinsic staining of teeth (2701= 1 tooth, 2702=2 teeth, etc.)

2800 Other conditions of hard tissues of the tooth, unspecified (2801=1 tooth, 2802=2 teeth, etc.)

Example:
A child has abnormal fissures in teeth 37, 47, a supernumerary tooth, dental fluorosis in less than 1/3 of the enamel surface of teeth 11, 12, 21, 22.
The diagnostic codes for this child would be:

2122 (abnormal fissures in two permanent teeth),

2191 (one supernumerary tooth),

2314 (Dental fluorosis in less than 1/3 of the enamel surface in 4 teeth).

3000 Diseases of pulp and periapical tissues:

3100 Diseases of the pulp

3110 Hyperaemia (3111=1 tooth, 3112= 2 teeth, etc.)

3120 Acute Pulpitis (3121=1 tooth, 3122=2 teeth, etc.)

3130 Chronic Pulpitis (3131=1 tooth, 3132=2 teeth, etc.)

3140 Pulpal abscess (3141=1 tooth 3142=2 teeth, etc.)

3150 Pulp polyp (3151=1 tooth, 3152= 2 teeth, etc.)

3160 Pulp necrosis - non vital pulp (3161=1 tooth, 3162=2 teeth, etc.)

3170 Pulpitis, unspecified (3171= 1 tooth, 3172=2 teeth, etc.)

Note: Pulp involvement due to trauma is included under *Injury* and *Certain other consequences of External origin*

3200 Diseases of periapical tissues of pulpal origin

3210 Acute periapical abscess (3211= 1 tooth, 3212=2 teeth, etc.)

3220 Chronic periapical abscess (3221= 1 tooth, 3222=2 teeth, etc.)

3230 Periapical abscess with a fistula (3231=1 tooth, 3232=2 teeth, etc.)

3240 Periapical cyst (3241=1 tooth, 3242=2 teeth, etc.)

3250 Cellulitis of dental origin (3251= 1 tooth, 3252=2 teeth, etc.)

3300 Lymphadenopathy of dental origin

3400 Other and unspecified diseases of pulp and periapical tissues

Example:
A child presents with a pulp polyp in one tooth and pulp necrosis in two teeth.
The diagnostic codes for this child would be:

3151 (pulp polyp in one tooth)

3162 (pulp necrosis in two teeth).

4000 Diseases of gingiva and periodontium:

4100 Acute gingivitis

4110 Plaque associated gingivitis— includes bleeding on probing (4111=one sextant, 4112= two sextants ... 4116=six sextants)

4120 Acute ulcerative gingivostomatitis 4121=one sextant ... 4126=six sextants)

4130 Acute necrotizing ulcerative gingivitis (4131=one sextant ... 4136= six sextants)

4140 Pericoronitis or eruption gingivitis (4141=one sextant ... 4146=six sextants)

4150 Acute gingivitis, unspecified (4151=one sextant, ... 4156 =six sextants)

4200 Chronic gingivitis

4210 Chronic or long-standing gingivitis (4211= one sextant, ... 4216=six sextants)

4220 Steroid or hormone-induced gingival hyperplasia (4221=one sextant, ... 4226=six sextants)

4230 Medication-influenced gingival overgrowth (4231= one sextant, ... 4236=six sextants)

4240 Desquamative gingivitis (4241= one sextant, ... 4246=six sextants)

4250 Gingival recession (4251=one sextant, ... 4256=six sextants)

4260 Pigmentation of the gingiva (4261=one sextant, ... 4266=six sextants)

4270 Other chronic gingivitis, unspecified (4271=one sextant, ... 4276=six sextants)

4300 Acute periodontitis

4310 Necrotizing ulcerative periodontitis (4311= one sextant, ... 4216=six sextants)

4320 Prepubertal periodontitis (4321=one sextant, ... 4326=six sextants)

4330 Juvenile periodontitis (4331=one

sextant, ... 4336=six sextants)

4340   Rapidly progressive periodontitis
(4341=one sextant, ... 4346=six
sextants)

4350   Periodontal abscess of gingival
origin (4351=one sextant, ... 4356=
six sextants)

4360   Acute periodontitis, unspecified
(4361=one sextant, ... 4366=six
sextants)

4400   Chronic periodontitis

4410   Adult mild periodontitis—attach-
ment loss of 1-3 mm (4411=one
sextant, ... 4416=six sextants)

4420   Adult moderate periodontitis—
attachment loss 3.5-5.5 mm (4421=
one sextant, ... 4426=six sextants)

4430   Adult severe periodontitis—
attachment loss 5.5 mm (4431=one
sextant, ... 4436=six sextants)

4440   Periodontitis associated with
systemic disease (4441= one
sextant, ... 4446=six sextants)

4450   Refractory periodontitis (4451=one
sextant, ... 4456=six sextants)

4460   Other chronic periodontitis,
unspecified (4461=one sextant, ...
4466=six sextants)

Example:
An adult has calculus in the lower anterior
and 3–5 mm attachment loss in four poste-
rior sextants.
The diagnostic codes for this person would
be:

2666   (subgingival calculus on 6 teeth)
4424   (adult moderate periodontitis in
four sextants)

5000   Injury and certain other conse-
quences of external origin:

5100   Fractures of teeth

5100   Fracture of enamel (vital tooth)
(5101=1 tooth, 5102=2 teeth, etc.)

5110   Fracture of crown of tooth without
pulpal involvement (5111=1 tooth,
5112=2 teeth, etc.)

5120   Fracture of crown with pulpal
involvement (5121=1 tooth, 5122=
2 teeth, etc.)

5130   Fracture of root of the tooth
(5131=1 tooth, 5132=2 teeth, etc.)

5140   Fracture of crown and root of the
tooth (5141=1 tooth, 5142=2 teeth,
etc.)

5200   Luxation of tooth due to trauma
(5201=1 tooth, 5202=2 teeth, etc.)

5300   Intrusion of tooth (5301=1 tooth,
5302=2 teeth, etc.)

5400   Avulsion of tooth (5401=1 tooth,
5402=2 teeth, etc.)

5500   Fracture of mandible

5600   Fracture of maxilla

5700   Fracture of other facial bone,
unspecified

5800   Other conditions of external origin,
unspecified

Example:
A child has fractures of the crowns of two
teeth with pulpal involvement, a fractured
root in one tooth, and luxation of three
teeth due to trauma.
The diagnostic codes for this child would
be:

5122 (fractured crown with pulpal in-
volvement in 2 teeth)

5131 (fracture root in 1 tooth)

5203 (luxation of 3 teeth)

6000   Infectious diseases and other
conditions:

6100   Infectious and parasitic diseases

6110   Herpes zoster

6120   Candidiasis

6130   Syphilis, oral manifestation

6140   Other infectious and parasitic
diseases, unspecified

6200 Diseases of the tongue

6210   Geographic tongue

6220   Hairy tongue

6230   Coated tongue

6240   Traumatic ulcer of the tongue

6250   Other diseases of the tongue,
unspecified

6300   Other conditions not mentioned
elsewhere

6310   Aphthous ulcer

6320   Lichen planus

6330   Leukoplakia

6340   Hairy leukoplakia

6350   Kaposi's sarcomas

6360   Mucocele

6370   Angular cheilitis

6380   Other conditions, unspecified

Example:
A patient presents with geographic tongue
and an aphthous ulcer.
The diagnostic codes for this patient would
be:

6210 (geographic tongue)

6310 (aphthous ulcer)

7000   Other disorders of teeth and
supporting structures:

7100   Loss of teeth due to caries

7110   primary teeth (1=1 tooth, 2=2 teeth,
etc.)

7120   permanent teeth (1=1 tooth, 2=2
teeth, etc.)

7200   Loss of teeth due to periodontal
disease

7210   primary teeth (1=1 tooth, 2=2 teeth,
etc.)

7220   permanent teeth (1=1 tooth, 2=2

teeth, etc.)

7300   Exfoliation of teeth due to systemic
disease.

7310   primary teeth (1=1 tooth, 2=2 teeth,
etc.)

7320   permanent teeth (1=1 tooth, 2=2
teeth, etc.)

7400   Loss of teeth due to accident
(Exclude current accident: 5300)

7410   primary teeth (1=1 tooth, 2=2 teeth,
etc.)

7420   permanent teeth (1=1 tooth, 2=2
teeth, etc.)

7500   Loss of teeth due to other unspeci-
fied causes

7510   primary teeth (1=1 tooth, 2=2 teeth,
etc.)

7520   permanent teeth (1=1 tooth, 2=2
teeth, etc.)

7600   Retained dental root(s)

7610   primary roots (1=1 tooth, 2=2 teeth,
etc.)

7620   permanent roots (1=1 tooth, 2=2
teeth, etc.)

7700   Other disorders of teeth and
supporting structures, unspecified.

Example:
A child, 3.5 years-old, has lost tooth 52 and
62 due to caries and has retained primary
roots in tooth 75.
The diagnostic codes would be:

7112—Loss of two primary teeth due to
caries

7611—Retained primary tooth roots for
one tooth

8000   Congenital malformations,
dentofacial anomalies, and
malocclusion:

8110   Excessive overjet (horizontal
overbite) ≥ 9 mm

8120   Excessive overbite (vertical overbite)
≥full tooth depth

8131   Anterior openbite

8132   Posterior openbite

8141   Anterior crossbite

8142   Posterior crossbite

8150   Midline deviation >4 mm

8210   Crowding of teeth >4 mm

8220   Spacing of teeth >4 mm

8230   Rotation of tooth

8240   Displacement of tooth

8250   Transposition of tooth

8260   Impacted tooth in normal position

8270   Impacted tooth in abnormal position

8280   Other malocclusion, unspecified

8310   Cleft palate

8320   Cleft lip

8330   Cleft uvula

8340   Other congenital malformations,
unspecified

8410   TMJ pain dysfunction syndrome

8420 Clicking
8430 Recurrent dislocation of TMJ
8500 Other congenital malformations, or
      dentofacial anomalies, unspecified.

Example:
A child has rotation in the lower incisors, midline deviation more than 4 mm, and overbite more than full tooth length. The diagnostic codes for this child would be:

8234 (rotation of 4 teeth)
8150 (midline deviation more than 4 mm)
8120 (overbite more than full tooth length)