ABSTRACT

Caries classification system and its use in clinical practice

Background - The caries lesion, the most commonly observed sign of dental caries disease, is the cumulative result of an imbalance in the dynamic demineralization and remineralization process that causes a net mineral loss over time. A classification system to categorize the location, site of origin, extent, and when possible, activity level of caries lesions consistently over time is necessary to determine which clinical treatments and therapeutic interventions are appropriate to control and treat these lesions.
Methods - In 2008, the American Dental Association (ADA) convened a group of experts to develop an easy-to-implement caries classification system. The ADA Council on Scientific Affairs subsequently compiled information from these discussions to create the ADA Caries Classification System (CCS) presented in this article.
Conclusions - The ADA CCS offers clinicians the capability to capture the spectrum of caries disease presentations ranging from clinically unaffected (sound) tooth structure to noncavitated initial lesions to extensively cavitated advanced lesions. The ADA CCS supports a broad range of clinical management options necessary to treat both noncavitated and cavitated caries lesions.

Artiklen er oprindeligt publiceret i: Young DA, Nový, Zeller GG et al. The American Dental Association Caries Classification System for Clinical Practice. JADA 2015;146:79-86. Copyright @2015 American Dental Association.
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The American Dental Association Caries Classification System for Clinical Practice

A report of the American Dental Association Council on Scientific Affairs

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Dental caries remains a common chronic disease and, in the absence of treatment, it may progress until the tooth is destroyed. Despite advances in restorative materials and the implementation of various preventive approaches, more than 90% of adults in the United States have experienced dental caries before 30 years of age (1,2).

Dental caries is a multifactorial disease involving many complex risk and protective factors (3). The clinical presentation of caries disease is a caries lesion; the severity of the disease and of individual caries lesions is the result of complex personal, biological, behavioral, and environmental factors. Some

EMNEORD
Caries classification system; caries lesion classification; caries location; caries extent; caries activity; caries management

Mineral loss

Fig. 1. Caries lesions represent a continuum of net mineral loss.

factors are protective, such as the presence of fluoride in the biofilm, whereas others lead to hard tissue destruction, such as lower plaque pH (4-6). Caries risk assessment is the organized process of evaluating these protective and pathogenic factors and provides the foundation (7-9) for selecting treatment interventions.

The dental profession continues to implement a more interceptive nonsurgical therapeutic model to prevent, treat, and reverse caries lesions, particularly in the early stages. Despite progress, the profession still primarily uses the G.V. Black system for caries classification, referring to the intended surgical (operative) outcome in classifying the caries lesion. Dr. Black's system does not address noncavitated lesions, yet, as Black anticipated in 1896, "The day is surely coming … when we will be engaged in practicing preventive rather than reparative dentistry" (10). The American Dental Association (ADA) Caries Classification System (CCS) is designed to help address that goal.

Because the caries lesion has different forms of clinical presentation during the disease process, clinicians need a classification system that supports appropriate treatment decisions using available nonsurgical and surgical approaches (11-13). Classifying lesion location, site of origin, extent, and if possible, activity, should be part of all dental evaluations to facilitate risk assessment and treatment recommendations (4,11,12).

Epidemiologic studies measuring the prevalence and severity of dental caries have used modified versions of Klein and colleagues' decayed, missing, and filled (DMF) (14) or Gruebbel's decayed, extraction indicated, and filled (def) (15) indexes; however, these indexes only capture cavitated lesions. Other indexes were designed to describe additional stages of the caries process. Among these approaches are the International Caries Detection and Assessment System (ICDAS), which uses visual surface characteristics to measure surface changes and potential histologic depths of caries lesions (16-18); the Pulp, Ulcer, Fistula, and Abscess system (PUFA), which is focused on staging the most severe levels of caries disease (19); and the Caries Assessment Spectrum and Treatment (CAST) (20), which includes staging caries lesions both for early and for more severe levels.

In 2008, the ADA convened a group of experts and stakeholders to begin the development of a CCS that would be useful in clinical practice while incorporating up-to-date scientific evidence (21). The ADA Council on Scientific Affairs subsequently, after several iterations, developed the current version of the ADA CCS presented in this report. The ADA CCS is intended to be easy to learn, is designed for use in various clinical practice settings, and has commonalities and differences with other caries classification approaches (22) used for clinical caries management and research (11).

The ADA Council on Scientific Affairs ultimately opted to create a new system that takes existing caries classification approaches into consideration, adds additional perspectives, and harmonizes these ideas into a single usable system. The ADA CCS is designed to include noncavitated and cavitated caries lesions and to describe them by clinical presentation without reference to a specific treatment approach. In addition, the ADA CCS—contrasted with some caries classification systems—links clinical lesion presentation to radiographic findings and provides an approach to identify, when possible, caries lesion activity over time.

The ADA Council on Scientific Affairs welcomes and expects feedback from clinicians, dental educators, and researchers in an effort to continue improving and refining the System.

Terminology and Definitions

Various terms used in the ADA CCS and their definitions follow:

Caries lesion is the clinical manifestation of caries disease. A patient diagnosed with caries disease can have few or many caries lesions (a clinical manifestation), and the number and extent of these lesions are measures of disease severity. Based on clinical parameters, each caries lesion may be classified as noncavitated or cavitated (Fig. 1).

Noncavitated refers to initial caries lesion development, before cavitation occurs. Noncavitated lesions are characterized by a change in color, glossiness or surface structure as a result of demineralization before there is macroscopic breakdown in surface tooth structure. These lesions represent areas with net mineral loss due to an imbalance between demineralization and remineralization. Reestablishing a balance between demineralization and remineralization may stop the caries disease process while leaving a visible clinical sign of past disease.

Cavitated (23) denotes a loss of surface integrity. In some cases, cavitation can be restricted to the enamel (for example, microcavitation). Note that these lesions should be differentiated

from linear enamel hypoplasia and molar incisor hypomineralization, which are often associated with higher risk of caries disease (24). Frequently, cavitation refers to the total loss of enamel and exposure of the underlying dentin. In any case, cavitation denotes the inability to biologically replace the loss of hard tissue and, if left untreated, the lesion is likely to progress.

Surgical refers to removal of tooth structure, usually resulting in placement of a restoration. Surgical treatment should be minimally invasive, conserve natural tooth structure (11), and be provided in conjunction with appropriate nonsurgical chemotherapeutic and behavioral interventions.

Nonsurgical treatment implies use of strategies including physical barriers (that is, sealants), biofilm modification, remineralization by means of chemotherapeutic interventions, and patient behavior change. As stated previously, the decision to treat a caries lesion nonsurgically or surgically often is made on the basis of whether or not the tooth surface is fully cavitated (4,11).

Description of the American Dental Association Caries Classification System

The ADA CCS scores each surface of the dentition based on the following: tooth surface, presence or absence of a caries lesion, anatomic site of origin, severity of the change, and estimation of lesion activity. Clinical application of the ADA CCS relies upon examinations conducted on a clean tooth with compressed air, adequate lighting, and the use of a rounded explorer or ball-end probe. Indicated radiographs also should be available.

Detection criteria for tooth surface sites of origin are defined in Table 1 (11) as follows:

American Dental Association Caries Classification System tooth surface site definitions.*

SITE	DEFINITION
Pit and Fissure	Referring to the anatomic pits or fissures of teeth, such as occlusal, facial, or lingual surfaces of posterior teeth, or linguel surfaces of maxillary incisors or canines
Approximal	Referring to the immediate proximity to the contact area of an adjacent tooth surface; may exist on any surface of the tooth
Cervical and Smooth Surface	Referring to the cervical area or any other smooth enamel surface of the anatomic crown adjacent to an edentulous space; may exist anywhere around the full circumference of the tooth
Root	Referring to the root surface apical to the anatomic crown

* Source: Ismail and colleagues.[11]

Table 1. Detection criteria for tooth surface sites of origin. Pit and fissure; approximal; cervical and smooth surface; root.

In the ADA CCS system, smooth, cervical, and root surfaces receive similar considerations because they share many similar characteristics and are accessible for visible and tactile clinical examination (Table 2). Classifying the site of origin for a caries lesion is useful in a caries management system for assessing the etiology of the lesion and for addressing the treatment options available for that caries lesion.

Sound surface

In the healthy state, the surface is sound, and there is no clinically detectable lesion. The dental tissue appears normal in color, translucency, and glossiness, or the tooth has an adequate restoration or sealant with no sign of a caries lesion.

Initial caries lesion

These are the earliest detectable lesions compatible with net mineral loss. They are limited to the enamel or cementum or very outermost layer of dentin on the root surface and, in the mildest forms, are detectable only after drying. The clinical presentation includes change in color to white or brown (for example, "cervical demineralization" along the gingival area), or well defined areas (for example, "white spot lesions" on smooth surfaces). In pits and fissures, there is a clear change in color to brown but no sign of significant demineralization in the dentin (that is, no underlying dark gray shadow). These initial lesions are considered noncavitated and, with remineralization, are reversible. Most of these lesions would be classified as "sound" in epidemiologic studies.

Moderate caries lesion

Moderate mineral loss results in a deeper demineralization with some possibility of enamel surface microcavitation, early shallow cavitation, and/or dentin shadowing visible through the enamel, which indicates the likelihood of dentin involvement (for example, microcavitation with visible dentin staining). These lesions display visible signs of enamel loss in pits and fissures, on smooth surfaces, or visible signs of cementum/dentin loss on the root surface. Although the pits and fissures may appear intact (yet brown), dentin involvement (demineralization) may often be detected by the appearance of a dark gray shadow or translucency visible through the enamel. Dentinal involvement of moderate lesions in approximal areas may be detected in a similar manner by examining the marginal ridges over the suspected lesion site, which may have gray discoloration or appear translucent. If the suspected site of an approximal lesion cannot be directly inspected, which is often the case, the presence and extent of lesion cavitation cannot be assessed without the use of radiographs (25), tooth separation (26,27), or both, in combination with an assessment of lesion activity, where possible.

Advanced caries lesion

Advanced caries lesions have full cavitation through the enamel, and the dentin is clinically exposed. In the ADA CCS, any

clearly visible cavitated lesion showing dentin on any surface of the tooth is classified as "advanced." In epidemiologic studies, these lesions are classified as "decayed."

Note that any caries lesion described above also may be associated with an existing restoration or sealant.

Correlating the appearance of pit-and-fissure caries lesions relative to suspected histologic dentin penetration may be useful in clinical decision-making. For pit-and-fissure caries lesions, the ICDAS Coordinating Committee published data correlating the clinical appearance of these lesions with the histologic examination of the teeth after extraction. Per the published data (16,17), 0% to 50% of ADA CCS initial pit-and-fissure caries lesions could exhibit histologic dentin penetration; likewise, 50%

PRACTICAL IMPLICATIONS

The ADA CCS (American Dental Association Caries Classification System) is available for implementation in clinical practice to evaluate its usability, reliability, and validity. Feedback from clinical practitioners and researchers will allow system improvement. Use of the ADA CCS will offer standardized data that can be used to improve the scientific rationale for the treatment of all stages of caries disease.

American Dental Association Caries Classification System.

	AMERICAN DENTAL ASSOCIATION CARIES CLASSIFICATION SYSTEM			
	Sound	**Initial**	**Moderate**	**Advanced**
Clinical Presentation	No clinically detectable lesion. Dental hard tissue appears normal in color, translucency, and gloss.	Earliest clinically detectable lesion compatible with mild demineralization. Lesion limited to enamel or to shallow demineralization of cementum/dentin. Mildest forms are detectable only after drying. When established and active, lesions may be white or brown and enamel has lost its normal gloss.	Visible signs of enamel breakdown or signs the dentin is moderately demineralized.	Enamel is fully cavitated and dentin is exposed. Dentin lesion is deeply/severely demineralized.
Other Labels	No surface change or adequately restored	Visually noncavitated	Established, early cavitated, shallow cavitation, microcavitation	Spread/disseminated, late cavitated, deep cavitation
Infected Dentin	None	Unlikely	Possible	Present
Appearance of Occlusal Surfaces (Pit and Fissure)*,†	ICDAS 0 	ICDAS 1  ICDAS 2 	ICDAS 3  ICDAS 4 	ICDAS 5  ICDAS 6 
Accessible Smooth Surfaces, Including Cervical and Root‡		 	 	 
Radiographic Presentation of the Approximal Surface§	 E0¶ or RO# No radiolucency	   E1¶ or RA1# E2¶ or RA2# D1¶ or RA3# Radiolucency may extend to the dentinoenamel junction or outer one-third of the dentin. Note: radiographs are not reliable for mild occlusal lesions.	 D2¶ or RB4# Radiolucency extends into the middle one-third of the dentin	 D3¶ or RC5# Radiolucency extends into the inner one-third of the dentin

* Photographs of extracted teeth illustrate examples of pit-and-fissure caries.
† The ICDAS notation system links the clinical visual appearance of occlusal caries lesions with the histologically determined degree of dentinal penetration using the evidence collated and published by the ICDAS Foundation over the last decade; ICDAS also has a menu of options, including 3 levels of caries lesion classification, radiographic scoring and an integrated, risk-based caries management system ICCMS. (Pitts NB, Ekstrand KR. International Caries Detection and Assessment System [ICDAS] and its International Caries Classification and Management System [ICCMS]: Methods for staging of the caries process and enabling dentists to manage caries. *Community Dent Oral Epidemiol* 2013;41[1]:e41-e52. Pitts NB, Ismail AI, Martignon S, Ekstrand K, Douglas GAV, Longbottom C. ICCMS Guide for Practitioners and Educators. Available at: https://www.icdas.org/uploads/ICCMS-Guide_Full_Guide_US.pdf. Accessed April 13, 2015.)
‡ "Cervical and root" includes any smooth surface lesion above or below the anatomical crown that is accessible through direct visual/tactile examination.
§ Simulated radiographic images.
¶ E0-E2, D1-D3 notation system.[33]
# R0, RA1-RA3, RB4, and RC5-RC6 ICCMS radiographic scoring system (RC6 = into pulp). (Pitts NB, Ismail AI, Martignon S, Ekstrand K, Douglas GAV, Longbottom C. ICCMS Guide for Practitioners and Educators. Available at: https://www.icdas.org/uploads/ICCMS-Guide_Full_Guide_US.pdf. Accessed April 13, 2015.)

Table 2. The ADA CCS system for smooth, cervical, and root surfaces share many similar characteristics and are accessible for visible and tactile clinical examination.root.

to 88% of ADA CCS moderate pit-and-fissure caries lesions may penetrate histologically to dentin. ADA CCS advanced pit-and-fissure caries lesions, because they are fully cavitated, would be expected to have 100% histologic penetration to dentin (15). Consideration of these probability ranges for dentin demineralization could be beneficial in any caries management system that includes treatment considerations.

Lastly, the topic of longitudinal assessment of activity (28) deserves discussion. The ADA CCS scores visible changes in tooth structures and, therefore, cannot score initial caries activity before visible structural changes occur. Where there are visible signs of caries lesions, it is often possible to determine whether the lesion is active or arrested. Table 3 lists factors to consider when making a clinical determination of lesion activity or inactivity. The lesion is judged as active when there are manifestations suggestive of continued demineralization. This process can be followed over time to further determine the presence of disease activity, which may influence the decision regarding nonsurgical or surgical intervention. Detection of arrested lesions indicates the disease process is no longer active. "Affected dentin" is a term used to describe dentin that has been exposed to bacterial acids but is not yet infected by cariogenic bacteria. Depending on clinical assessment of caries lesion activity at the time of examination, affected dentin may be soft if demineralization is occurring (active) or may be hard if the lesion is arrested/remineralized (inactive). Affected dentin often is stained or discolored, which is not necessarily a reason for surgical removal particularly if the dentin has remineralized (29).

Caries lesion activity assessment, despite the limitations of this metric, may be a key factor for monitoring noncavitated lesion progression or regression over time, and lesion activity also may be a useful metric for gauging chemotherapeutic treatment effectiveness. Lesion activity should be considered when performing a direct clinical examination and when evaluating radiographs. Evidence of lesion activity over time, based on changes (or lack thereof) in the radiolucency (progression or arrest) could have a direct impact on clinical treatment decisions. An arrested, remineralized, noncavitated lesion (white or brown) is acid resistant and no longer an indicator of active caries disease. This factor should be considered when assigning caries risk status. A cavitated lesion by nature is more likely to be active and progress because self-cleaning is difficult.

Characteristics of active and inactive caries lesions.*

ACTIVITY ASSESSMENT FACTOR	CARIES LESION ACTIVITY ASSESSMENT DESCRIPTORS	
	Likely to Be Inactive/Arrested	Likely to Be Active
Location of the Lesion	Lesion is not in a plaque stagnation area	Lesion is in a plaque stagnation area (pit/fissure, approximal, gingival)
Plaque Over the Lesion	Not thick or sticky	Thick and/or sticky
Surface Appearance	Shiny; color: brown-black	Matte/opaque/loss of luster; color: white-yellow
Tactile Feeling	Smooth, hard enamel/hard dentin	Rough enamel/soft dentin
Gingival Status (If the Lesion Is Located Near the Gingiva)	No inflammation, no bleeding on probing	Inflammation, bleeding on probing

* Source: Ekstrand and colleagues.[28]

Table 3. factors to consider when making a clinical determination of lesion activity or inactivity.

Using the American Dental Association Caries Classification System in Clinical Practice

The best predictor of future caries lesions is the presence of current caries lesions or evidence of caries lesions in the recent past (8,9,30,31). Thus, a careful clinical hard-tissue examination must be part of diagnosis and risk assessment. The assessment process includes identification and classification of the presence of lesions (including white-spot lesions), recent restorations due to caries disease, cavitated lesions, and radiolucencies. During the clinical dental examination, the involved tooth surface or surfaces, the site of origin, the extent, and, if possible, the activity of any caries lesion should be recorded in a reliable and valid way to assess current disease status as well as changes in disease state over time. The ADA CCS is proposed to facilitate such assessment.

For lesions accessible via visual and tactile evaluation, which very often excludes the approximal contact area, the clinician can directly evaluate the lesion. When conducting the visual examination, the clinician should use a good source of light and air on a clean tooth. Forcing an explorer into any site to detect a lesion may cause cavitation and eliminate the chance to remineralize the previously intact surface (32); however, a rounded (blunt or dull) explorer or a ball probe can be used to evaluate surface texture (rough versus smooth) by dragging the instrument over the surface in question.

The visual and tactile examination of the teeth is enhanced when the clinician cleans and dries the pits and fissures while recording findings tooth-by-tooth to determine if each pit or fissure is sound, or, if a caries lesion is present, noting the lesion extent (initial, moderate, or advanced as (Table 2)) and, when possible, recording activity for each lesion as shown in Table 3. A comparison to the patient's previous examination findings will help assess caries lesion activity. Note that for surfaces (not teeth) where more than one distinct, independent lesion is present, each lesion is classified.

Next, the smooth surfaces are examined by drying the facial aspect and proceeding around the dentition (as a practitioner would when performing periodontal probing), eventually transitioning to the lingual surfaces, again recording tooth-

by-tooth the status of each lesion (Table 2), and, when possible, recording activity (Table 3) with particular attention to changes over time.

Lastly, the approximal surfaces are examined using the visual and tactile method where possible. When direct access is limited because of adjacent tooth contact, radiographs or elastomeric tooth separation can be used for examination to record the status of each lesion (Table 2). When sequential radiographs spanning the appropriate amount of time as indicated for each patient are available for an approximal caries lesion, Table 2 may be used to determine the radiographic progression or regression and, therefore, the activity of that caries lesion over time. Note that additional evidenced-based adjunctive aids to detect caries lesions, such as fluorescence-based techniques or other light-based caries diagnostic tools, may emerge and, as they are developed, clinically tested and validated, they may contribute to a more precise placement of caries lesions in the ADA CCS categories.

If a caries lesion involves two (or more) tooth surfaces and the two (or more) surfaces are obviously conjoined clinically, the surfaces are recorded together as a single unit. However, only the most likely site of origin would be recorded for that lesion. For example, a single lesion consisting of the mesio-occlusal surfaces together, thus creating a single advanced caries lesion judged to be active and to have started on the approximal surface, would be recorded in the following manner: no. 12 mesio-occlusal surfaces, approximal origin, advanced extent, active.

Each site of visible change can be scored as "inactive (I)" or "active (A)." Note that activity cannot be determined by radiographic appearance except in situations in which it is possible to compare sequential radiographic images of the same caries lesion exposed over an appropriate span of time. If the practitioner is unable to determine the activity level for a caries lesion using the activity factors in Table 3 (Table 2 for sequential radiographs), the lesion activity is recorded as "undetermined (UD)." If the practitioner decides not to assess activity level for a lesion, where such an assessment is possible using Table 3 (Table 2 for radiographs), it is recorded as "not recorded (NR)." Details of the most effective method for recording caries activity will be better developed during actual ADA CCS testing.

The following are additional examples of caries lesion classification recording using the ADA CCS as detailed in Table 1, Table 2, Table 3:

- no. 19 facial surface, pit and fissure origin, initial extent, inactive;
- no. 3 occlusal surface, pit and fissure origin, advanced extent, active;
- no. 3 facial surface, cervical/smooth surface origin, moderate extent, inactive;
- no. 7 facial surface, root origin, moderate extent, active;
- no. 20 distal surface, approximal origin, moderate extent, active (2 bitewing radiographs taken 1 year apart support the clinical judgment of "active" based on progression of caries lesion displayed on the bitewings and consistent with the "moderate extent" based on the Table 2 factors for this caries lesion).

Refer to Table 1, to the examples shown in Table 2, and to the criteria displayed in Table 3 to view additional specific details and examples that illustrate how the ADA CCS may be applied in clinical practice.

The approximal site is frequently not accessible for direct examination due to contact with the adjacent tooth; therefore, other factors for making clinical treatment decisions may be useful. In 1992, Pitts and Rimmer (25) correlated radiographic radiolucency depth to cavitation. In their study, none of the samples with a radiolucency in the outer one-half of the enamel were cavitated. If the radiolucency appeared in the inner one-half of the enamel on the radiograph, the percentage of cavitation was approximately 10.8% in permanent teeth, and 2.9% in primary teeth. These percentages increased to 40.9% in permanent teeth and 28.4% in primary teeth if the radiolucency extended to the outer one-half of dentin, and to 100% cavitation in permanent teeth and 48% in primary teeth if the radiolucency extended to the inner one-half of the dentin.

The ADA CCS, as shown in Table 2, uses a nomenclature that divides the dentin into thirds (32) instead of halves. This nomenclature (E0, E1, E2, D1, D2, and D3) (33) is simply a way to express the depth of a radiolucency as measured on a dental radiograph. Dividing the dentin into thirds, rather than halves, results in finer gradation to allow for specific attention to the D1 area where, according to Pitts and Rimmer (25), cavitation is less likely. Radiographic extent is only an estimate on the continuum of mineral loss described previously and may not always fit neatly into one lesion stage. For example, because the middle of the D2 stage is exactly halfway from the dentinoenamel junction to the pulp, there may be some early D2 radiolucencies that may not be clinically cavitated, whereas deeper D2 radiolucencies are more likely to be cavitated. The use of tooth separation, where possible, may be helpful in confirming cavitation of a deep D1 or shallow D2 radiolucency. These correlations may be useful when making treatment decisions.

It is anticipated that entry of the ADA CCS examination data may be most easily and effectively accomplished using electronic dental records configured with appropriate user-friendly data entry workflow that offers drop-down pick lists or other straightforward data selection methods. In addition, electronic dental record entry will allow automated use of standardized computable diagnostic coding terminologies to describe the practitioner's clinical findings for each caries lesion. Furthermore, electronic entry of the caries lesion data elements will support calculations that, over a time span, will enable practitioners to trend progression or regression of caries lesions. This is analogous to the electronic entry of periodontal probing data in millimeters at 6 points around each tooth to allow calculation of the clinical attachment level for each probed site.

Such calculations, based on clinical data collected at 2 different times with an appropriate interim between these clinical observations, improve trending the data to track the progression or regression of periodontal or caries lesions over time. In the absence of an electronic dental record, the practitioner can easily implement the ADA CCS using a paper form and manual calculations regarding caries lesion progression over time.

Potential Benefits

To determine the effectiveness of caries management strategies aimed at improving patient care, a CCS must be reliable, valid, and easily integrated into clinical practice (that is, usable). Research has reported a lack of reliability in detecting early lesions among classification systems used in practice (34). In addition, the availability of classification factors needed in daily clinical practice are limited in all of these systems. The ADA CCS—with an integrated process for capturing useful components of the caries process—is now available for the next step: initiation of reliability and usability testing by practitioners in clinical and research settings. The feedback from practitioners and researchers will lead to improvements in the system. The results of prior studies examining the reliability of caries classification in 2011 and 2013 can offer insight into acceptable limits for agreement in evaluation of the ADA CCS (34,35).

Summary

Limiting the dental examination to cavitated lesions by using the G.V. Black system fails to recognize the earliest signs of caries lesions and underestimates the prevalence and severity of disease. Furthermore, this approach only describes cavitated lesions, thus limiting the capacity to assess the effectiveness of preventive interventions for the early stages of caries disease. The ADA CCS attempts to correct these limitations by including reliable criteria for detecting early lesions and for monitoring the clinical status of these early lesions over time. It is hoped that the ADA CCS will facilitate measuring the effectiveness of contemporary caries disease management strategies in clinical practice as the profession continues to strive toward improving overall patient health through improved oral health.

Litteratur

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Disclosure. Dr. Nový is employed by the DentaQuest Institute. None of the other authors reported any disclosures.

The ADA Council on Scientific Affairs reached out to external content experts to create this document and would like to recognize the following people for their contributions: Kim R. Ekstrand, DDS, PhD; John D.B. Featherstone, MSc, PhD; Margherita Fontana, DDS, PhD; Amid Ismail, BDS, MPH, DrPH, MBA; John Kuehne, DDS, MS; Chris Longbottom, BDS, PhD; Nigel Pitts, BDS, PhD; David C. Sarrett, DMD, MS; Tim Wright, DDS, MS; Anita M. Mark; and Eugenio Beltran-Aguilar, DMD, DrPH, DABDPH. The authors also would like to thank Chi Tran, DDS, for his assistance with the radiographs in Table 2.