USRP/2013/66

Caries Detection By Visual Inspection of newly Graduate Dentist in Riyadh City

Faisal AlSonbul (BDS, AEGD, SSCARD), **Razan AlMutairi** (BDS),
Njood AlYousof (BDS), **Hind Mubaraki** (BDS)
(Riyadh Collages of Dentistry and Pharmacy)

Introduction

• The caries process is a continuum resulting from many cycles of demineralization and re-mineralization.

Dental Caries → A transmissible bacterial disease process caused by acids from bacterial metabolism diffusing into enamel and dentine and dissolving the minerals.

• According to the understanding of the disease.

The ability to detect the caries will be → Increased

• Occlusal surface are the most caries-affected sites in children and adults.
• The search for more accurate methods for early caries detection has grown in the last years in order to reduce the number of false-positive decisions and to avoid unnecessary invasive treatment.
• Visual examination is the most used methods for the detection of caries and has been commonly used in clinical practice.
• The International Caries Detection and assessment system (ICDAS) was developed to provide more detailed visual scoring system.

Aim of The Study

Evaluating the capabilities of newly graduated dentists to diagnose the carious lesions visually based on their education and clinical experience.

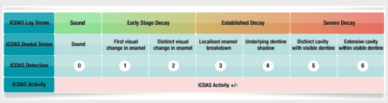


Materials and Methods

A total of 100 questioners were distributed in RCsDP campuses among dentists.

18 unrestored posterior teeth (6 premolar and 12 molar) representing all ICDAS scores on Occlusal surfaces were selected from a pool of recently extracted teeth.

• The Evaluation coding was based on the ICDAS; two expert examiners (members of the ICDAS Coordination Committee, calibrated and experienced in use of the criteria) scored each site independently using the ICDAS severity criteria.
• 73 newly graduated dentists carried out the caries detection through visual inspection.
• There was a distribution of responses of criteria for each of the 18 teeth by the newly graduated dentists, which was assessed on a categorical scale with 8 categories, when these responses were compared with ICDAS severity criteria provided by expert examiners.



Results

• When these responses were compared with ICDAS severity criteria provided by expert examiners, we have found high statistically significant difference between the correct and not correct responses for all teeth except the tooth no. 5 and 12.
• There is a highly statistically significant in the proportion of correct and not correct responses from tooth no. 1 to tooth no.18 excluding tooth no. 5 & 12, where the "not correct" answers are statistically significant higher than the "correct answers".
• Whereas the distribution of correct and not correct answers for tooth no. 5 and 12 are not statistically different (p= 0.079 & p=0.292).

Table 1: Distribution of responses of criteria in relation to each of the 18 teeth by newly graduate dentists.

Tooth No.	Responses of Criteria* (%)								Total
	1	2	3	4	5	6	7	8	
1	20 (27.4)	8(11)	3(4.1)	---	1(1.4)	11(15.1)	21(28.8)	9(12.3)	73
2	24(32.9)	12(16.4)	---	1(1.4)	---	12(16.4)	20(27.4)	4(5.5)	73
3	9(12.3)	25(34.2)	21(28.8)	3(4.1)	8(11)	1(1.4)	1(1.4)	5(6.8)	73
4	14(19.2)	22(30.1)	13(17.8)	4(5.5)	7(9.6)	3(4.1)	6(8.2)	4(5.5)	73
5	14(19.2)	2(2.7)	4(5.5)	1(1.4)	1(1.4)	12(16.4)	10(13.7)	29(39.7)	73
6	7(9.6)	10(13.7)	26(35.6)	8(11)	3(4.1)	8(11)	6(8.2)	5(6.8)	73
7	14(19.2)	5(6.8)	10(13.7)	13(17.8)	18(24.7)	12(16.4)	--	1(1.4)	73
8	12(16.4)	2(2.7)	2(2.7)	12(16.4)	14(19.2)	25(34.2)	1(1.4)	3(4.1)	73
9	17(23.3)	11(15.1)	20(27.4)	14(19.2)	5(6.8)	4(5.5)	--	2(2.7)	73
10	17(23.3)	2(2.7)	6(8.2)	3(4.1)	3(4.1)	9(12.3)	10(13.7)	23(31.5)	73
11	15(20.5)	20(27.4)	6(8.2)	2(2.7)	1(1.4)	7(9.6)	12(16.4)	10(13.7)	73
12	11(15.1)	2(2.7)	6(8.2)	2(2.7)	7(9.6)	41(56.2)	3(4.1)	1(1.4)	73
13	17(23.3)	16(21.9)	8(11)	8(11)	1(1.4)	6(8.2)	11(15.1)	6(8.2)	73
14	16(21.9)	7(9.6)	2(2.7)	5(6.8)	6(8.2)	2(2.7)	16(21.9)	19(26.0)	73
15	25(34.2)	10(13.7)	15(20.5)	2(2.7)	2(2.7)	11(15.1)	4(5.5)	4(5.5)	73
16	10(13.7)	21(28.2)	11(15.1)	13(17.8)	3(4.1)	10(13.7)	4(5.5)	1(1.4)	73
17	19(26)	14(19.2)	14(19.2)	16(21.9)	5(6.8)	2(2.7)	---	3(4.1)	73
18	13(17.8)	1(1.4)	1(1.4)	--	13(17.8)	45(61.6)	---	--	73

*Table-1: 1—First visual change in enamel (seen only after prolonged air drying or restricted to within the confines of a pit or fissure; 2—Distinct visual changes in enamel; 3—Localized enamel breakdown in opaque or discolored enamel (without visual signs of dentinal involvement); 4— Underlying dark shadow from dentine; 5— Distinct cavity with visible dentin; 6—Extensive distinct cavity with visible dentin; 7—Stain; 8— No answer or zero.

Diagram 1: The correct responses by newly graduate dentists.

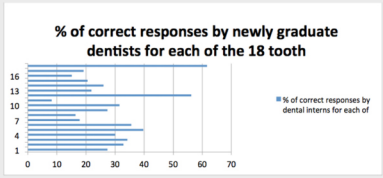
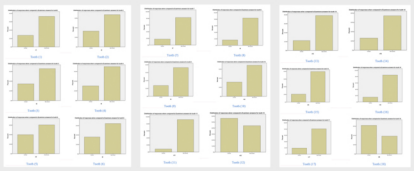


Diagram 2: Distribution of responses when compared to examiners answers



Discussion

• In our study, ICDAS performed well in detecting occlusal caries. We don't have an average of kappa values because there was an agreement between the two examiners.
• The study was done with dentists (two examiners) who had an average of ten years experiences, whereas the other consisted of newly graduate dentists. Therefore, there was a significant difference between the experienced dentists detection than the newly graduate dentists.

Conclusion

Even though ICDAS performed well in detecting occlusal caries, there was a significant different between the capabilities of newly graduated dentist to the Evaluation coding was based on the ICDAS; from two expert examiners.



References

Some cold hard facts about dental caries that you need to know