

Abstract for AADR Annual Meeting Los Angeles, CA, March 16-19, 2016

Dentists' Decision Strategies for Suspicious Lesions in a National-Dental-PBRN study

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Objectives: Case presentations (vignettes) were completed by dentists participating in the National Dental Practice-Based Research Network (<u>www.NationalDentalPBRN.org</u>) study "Decision Aids for the Management of Suspicious Occlusal Caries Lesions (SOCLs)". The objective was to determine dentists' decision strategies for SOCLs.

Methods: An online patient vignette system was used to capture individual decision strategies (idiographic analysis) using a lens model analysis. 108 dentists were presented a series of 16 vignettes that represented all combinations of 4 cues: color, luster, lesion roughness, and patient-level caries risk. Each vignette included a patient description and a photograph of a tooth representing the 4 cues. Dentists were asked to decide the likelihood that the lesion was in dentin. A lens model analysis was used to examine statistical reliability and magnitude of each dentist's overall decision strategy and individual cue use.

Results: 86% of dentists had a statistically reliable decision strategy. On average, 70% of the variance in their decisions was accounted for by their use of the 4 cues. Furthermore, there was considerable variability in the individual cues used by each dentist. The percentages of dentists who used the different cues (reliably) was: luster (58%), color (48%), roughness (36%), and risk (35%). 12% of dentists reliably used only color, 8% used only luster, 4% used only roughness, and 1% used only risk when making SOCL decisions. The remaining dentists (76%) used a combination of more than one cue to make SOCL decisions.

Conclusion: The online vignette system, coupled with an idiographic analysis, demonstrated that SOCL decision strategies are highly individualized and dentists do not use all cues available to them to make these decisions. Support: U19-DE-22516.

Word count title= 10. Limit = 10. Word count text= 269. Limit = 300. Development of clinical vignettes in a National Dental PBRN study Sonia K. Makhija, Mike Robinson, Dan A. Shugars, , Mark S. Litaker, Kavya Vellala, Hong R Im, Gregg H. Gilbert, James D. Bader, National Dental PBRN Collaborative Group

Objective:

As part of a National Dental Practice-Based Research Network (NationalDentalPBRN.org) study "Decision Aids for the Management of Suspicious Occlusal Caries Lesions (SOCLs)", simulated "treatment decision exercises" (vignettes) were developed to determine if 4 clinical cues (color, luster, roughness, and patient caries risk) independently influenced treatment decisions about SOCLs. The objective is to describe the process used to develop these vignettes, with an emphasis on selecting appropriate clinical images.

Methods:

Four cues and treatment options chosen were based on previous SOCL network study results. The results from the previous study were as follows: 85% of SOCLs were dark brown/black or yellow/light brown (color); 50% of the lesions were shiny and 50% of the lesions were chalky (luster); 50% of the lesions had a rough occlusal and 50% of the lesions had a smooth occlusal surface (luster). Patient's caries risk for the vignettes were classified as low/elevated. Vignettes comprised brief descriptions of a patient (roughness/risk) and a photograph of a tooth (color/luster). A three-stage procedure assured that teeth accurately represented all four color/luster combinations under test conditions. Stage 1: Study investigators (n=3) reviewed available images to identify 25 photographs of teeth they thought depicted the key features. Stage 2: 5 practitioners from each Network region (n=30) viewed the photographs online and rated the lesions as yellow/light brown vs. dark brown/black and shiny vs. chalky. Stage 3: From these ratings, the three investigators selected 4 photographs with the highest agreement for the 2 cue combinations. We targeted 70% agreement as a minimum standard for picture validity.

Results:

The final four photographs had almost unanimous agreement for color (97%) and high agreement for luster (83%). For the final study, roughness and risk were presented via text.

Conclusion:

Investigators were able to successfully develop a set of online-presented lesions vignettes for further investigation of dentists' decisions about SOCLs. Support: U19-DE-22516.



Abstract for AADR Annual Meeting San Francisco, CA, March 22-25, 2017

Characteristics/depth penetration of suspicious carious lesions: A National-Dental-PBRN study

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Objective: A suspicious occlusal carious lesion (SOCL) can be defined as an occlusal tooth surface with no cavitation or radiographic radiolucency, but caries is suspected due to surface roughness, opacities, or staining. Our objective was to quantify the characteristics of SOCLs and their relationship to depth of penetration into the tooth.

Methods: Ninety-three dentists participated. When consented patients presented with a SOCL, information was recorded about the tooth, lesion, treatment(s) done that day, and if the SOCL was opened surgically, its depth. The Rao-Scott cluster-adjusted chi-square test was used to evaluate associations between lesion depth and color and luster.

Results: 1591 SOCL were analyzed; 76% occurred in molars. SOCL color varied from yellow/light brown (40%) to dark brown/black (47%), with 13% other color. Approximately half (54%) presented with a chalky luster. A majority (69%) had a rough surface when examined with an explorer. The diagnostic aids used when confirming a SOCL included air drying (96%), dental explorer (96%), and magnification (67%). Many SOCLs (39%) were treated surgically (enameloplasty; preventive resin restoration; full restoration).

Of the SOCLs that were opened (n=585), 61% had caries into dentin. There were statistically significant associations between lesion depth and color (p=0.03) and luster (p=0.04). Most (55%) of the opened lesions that had no caries and 43% of the lesions that had caries limited to enamel were yellow/light brown, while 50% of the lesions that had caries into dentin and 55% with no caries were dark

brown/black. Overall, a majority of all opened lesions were chalky, which was 64% for no caries, 52% for inactive caries, 61% for caries limited to enamel, and 72% for caries in dentin.

Conclusion: Understanding the relationship between clinical characteristics (e.g., color, texture) and lesion depth may provide clinicians useful diagnostic information. Support: U19-DE-22516.

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