

Diagnostic & Screening Methods for Periodontal Disease in Children & Adolescents

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BACKGROUND/INTRODUCTION

A standard of care is currently not present for which age to begin periodontal charting for children and adolescents and its frequency. Because of this, radiographs are the primary and often only diagnostic tool utilized to screen for periodontal conditions which can lead to missed disease. The researchers aim to demonstrate a need to utilize both x-rays and periodontal charting for a comprehensive approach to accurate diagnosis.

AIMS/OBJECTIVES

1. Develop diagnostic tool to evaluate the reliability of traditional methods for proper diagnosis of periodontal disease in children/adolescents.
2. Educate dental professionals regarding the evidence on methods for early diagnosis, prevention and treatment of this disease.
3. Evaluate current knowledge and screening/diagnostic skill levels of participants before and after educational component.

MATERIALS & METHODS

- Evaluation tool to include a blend of diagnostic methods through comparison of radiographs and periodontal charting where diagnosis methods will be assessed with radiographs alone, periodontal chart alone and dual method to determine diagnosis accuracy of each.
- Development of continuing education (CE) course to educate dental professionals regarding the evidence on methods for early diagnosis, prevention and treatment of this disease in children and adolescences.
- Pre and post CE assessment for participants to demonstrate knowledge of periodontal disease in children and adolescences and screening/diagnostic skill levels of participants before and after educational component.

RESULTS

An accurate diagnosis was obtained 79% of the time when utilizing radiographs and periodontal charting together compared to 17% accuracy when the investigator based a diagnosis off radiographs alone, the method often used in a pediatric setting. CE course results demonstrated 100% of participants were able to accurately identify all components required for accurate diagnosis as well as identify American Academy of Pediatric Dentistry (AAPD) recommendations for periodontal examination and diagnosis in every child. Additionally, participants were able to show a modest increase in ability to accurately diagnose periodontal disease when comparing pre and post CE course assessments.

CONCLUSION

Periodontal diagnosis is more accurately performed by both radiograph and periodontal charting evaluation compared to the routinely used radiographic assessment alone. Although CE course was helpful in providing information on disease diagnosis, a modest increase in the ability to accurately diagnose was observed.

MPH COMPETENCIES

- Inform, educate, and empower people about health issues
- Mobilize community partnerships and action to identify and solve health problems
- Develop policies and plans that support individual and community health efforts
- Use laws and regulations that protect health and ensure safety
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services
- Conduct research for new insights and innovative solutions to health problems
- Communicate effectively with public health constituencies in oral and written forms

PUBLIC HEALTH PRACTICE COMPETENCIES

- Identify & understand the historical context of epidemiology, epidemiologic terminology, study designs & methodology
- Demonstrate ability to analyze and interpret epidemiologic data
- Explain & communicate current epidemiologic & public health problems for informing scientific, ethical, economic & political discussions of health problems
- Understand and apply the principles of community participation in public health interventions
- Demonstrate knowledge and skills needed to design and implement a public health information campaign
- Demonstrate communication skills key to public health workforce participation and advocacy
- Identify, retrieve, summarize, manage and communicate public health information

PUBLIC HEALTH RELEVANCE

Periodontal disease can lead to the destruction of the supporting structures around teeth, resulting in tooth loss (4). Forms of periodontal disease have reported in up to 70% of school-aged children (2). A clear standard of care is not set for which age to begin screening for periodontitis (1), leading to the potential for missed disease and poor outcomes for those where disease is present. Poor oral health has shown to have a negative impact on the total body. Epidemiologic research has provided evidence of possible “associations between oral infections—particularly periodontal disease—and diabetes, cardiovascular disease, and adverse pregnancy outcomes” (3).

A study examining 150 children and adolescents with localized aggressive periodontitis evaluated the progression of disease. Forty patients were identified with periodontitis when it was detected and treated in the primary dentition. Of the forty patients, none had developed disease in their permanent dentitions. Retrospective radiograph analysis demonstrated a vast majority of patients presenting with disease in the permanent dentition, showed evidence of untreated disease in the primary dentition (5). Accurate and early diagnosis during early years is essential to establish a baseline for a lifetime of good oral health.

1. Califano JV, S Research P (2003) Therapy Committee American Academy of Position paper: periodontal diseases of children and adolescents. *J Periodontol* 74: 1696-1704.
2. Oh TJ, R Eber, HL Wang (2002) Periodontal diseases in the child and adolescent. *J Clin Periodontol* 29: 400-410.
3. Part Three: What Is the Relationship Between Oral Health and General Health and Well-being (2014). National Institute of Dental and Craniofacial Research. Accessed: <https://www.nidcr.nih.gov/DataStatistics/SurgeonGeneral/sgr/home.htm>
4. Periodontal (Gum) Disease: Causes, Symptoms, and Treatments (2013). National Institute of Dental and Craniofacial Research. September 2013: NIH Publication No. 13-1142.
5. Shaddox LM, Miller K (2017) Periodontal Disease in Children and Adolescents: A masked Reality! *Pediatr Dent Care* 2:131.