

# PREVALENCE OF DENTAL ANOMALIES IN CHILDREN DISCOVERED ON PANORAMIC RADIOGRAPHS

## INTRODUCTION

Dental radiographs are a necessary component of a complete dental evaluation in children. They evaluate oral disease, monitor dental development, and assess any anomalies or pathology. Panoramic radiographs are essential tools for detecting and diagnosing developmental dental anomalies and pathologies in children's maxilla, mandible, and surrounding structures. Developmental anomalies refer to deviations from normality due to congenital or hereditary factors, which may manifest as unique entities or as part of a systemic disturbance. These anomalies can occur at any stage of tooth development, making radiographic exams crucial for creating comprehensive and accurate treatment The American Academy for Pediatric Dentistry has established protocols designed to maximize the benefits of dental radiographic examinations while minimizing radiation exposure to patients. According to these protocols, there are two accepted examination methods for children with both primary and permanent teeth: a panoramic radiograph combined with bitewings and periapical exams or a complete intraoral examination along with bitewings. While panoramic radiographs have certain disadvantages, such as limited detail, poor definition of specific structures, and minor distortions, they remain an excellent choice for visualizing dental anomalies and pathologies. Anomalies can include impacted canines, which are quite common and can often be identified at an early age. Among the teeth, third molars are the most frequently impacted, with maxillary canines ranking as the second most common. Other anomalies encountered are microdontia and hypodontia. Microdontia refers to unusually small teeth, typically affecting a single tooth but potentially generalized across multiple teeth. Hypodontia is characterized by the absence of one or more teeth, excluding third molars, and is one of the most prevalent dental anomalies observed. True cystic jaw lesions are relatively rare in the pediatric population. In the broader population, radicular cysts are the most frequently encountered jaw cysts. However, in children, developmental dentigerous cysts are more common and typically develop around impacted or unerupted teeth. Additionally, pulpal anomalies may also be visible during radiographic examinations.

### METHODS

Diagnostic panoramic images taken at Children's of Mississippi Hospital in the calendar year of 2023 were reviewed of patients between the ages of 6-12. The following were reported: age, gender, race, and medical history of the child. We tabulated and reported the following: supernumerary teeth, congenitally missing teeth, impacted teeth, ectopic eruptions, pulpal abnormalities, radiolucent pathology, radiopaque pathology, mixed lesions, and the location (maxilla or mandible). We analyzed 391 panoramic radiographs that were taken in the year 2023. Our data was recorded using randomized numbers in an Excel spreadsheet to mask patient identity.

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MALPOSITIONED TEETH



SUPERNUMERARY LOWER INCISOF



TAURODONTIC PULP CHAMBERS



CONGENITALLY MISSING TEETH

ASSIGNED #	AGE	BOY	GIRL	RACE	DESCRIPTION OF LESION AND/OR ABNORMALITY	LOCATION	LOCATION	YES/ NO FOLLOWUP	YES/ NO BIOPSY	YES/ NO CONEBEAM

# **RESULTS / SUMMARY**

Hypodontia accounted for 55% of recorded anomalies. Of the patients with a history of cleft lip and/or palate, 66% exhibited hypodontia. The most common congenitally missing teeth were the mandibular second premolars. 15% of anomalies were impacted teeth. Half of the impacted teeth were canines. 13% of recorded anomalies included taurodontism of the pulp chambers. Dentigerous cysts and mucus retention cysts accounted for less than 2%. Prevalence of anomalies broken down by race and gender were represented by 44% females and 55% males. 48% of anomalies were seen in African American population, 26% seen in Caucasian population, 20% -other and 4% Hispanic.

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# WORKSHEET

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