Expanding Dental Care Access: Intraoral Cameras Work

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Motivation

Dental caries is a common childhood disease with a strong socioeconomic impact, affecting 40% of kids by kindergarten[1,2]. Low-income and minority children experience higher decay rates and untreated pain[3], yet a shortage of dentists limits their care, especially for Medicaid, CHIP, and uninsured patients. While early dental visits are recommended, many children see a dentist only when in pain. However, they visit their medical home before age three, providing an opportunity for integrated dental screenings. Teledentistry and intraoral cameras can improve early detection, streamline treatment planning, and ensure timely care without extra evaluation appointments.

Project Description

We trained **public health hygienists** to use **intraoral cameras** for early detection of dental issues, **expand outreach programs** to integrate this technology into community care, and improve referral pathways for underserved populations. By leveraging intraoral imaging, we aim to **enhance diagnostics, increase access to care, and reduce oral health disparities**.

Context

The **integration** of intraoral camera technology into dental screenings was evaluated in clinics with limited dental resources. These cameras were used by non-dentist healthcare professionals to capture real-time images of patients' teeth. The data collected was then remotely analyzed by dental professionals for **diagnosis, treatment planning, and identification of dental caries**.

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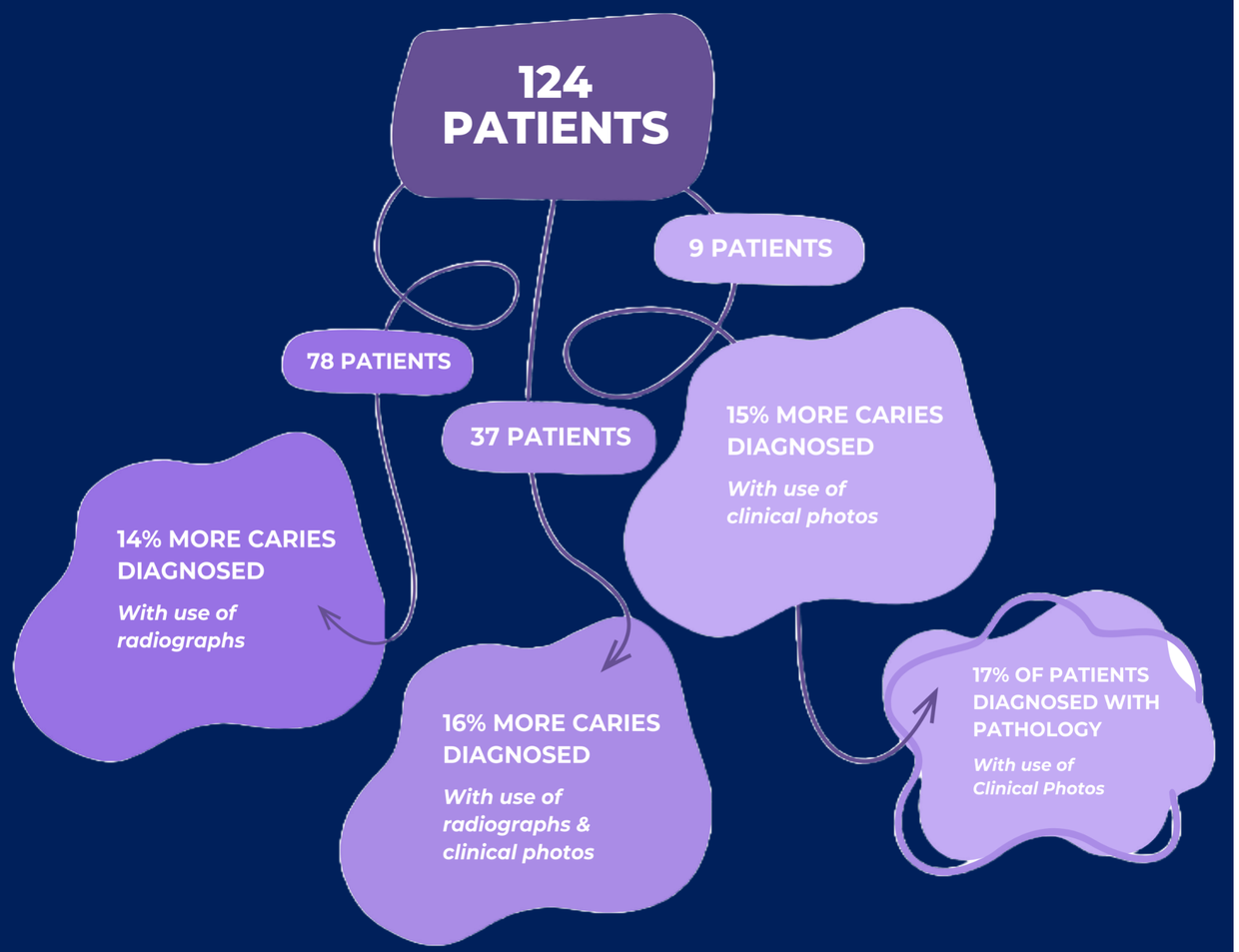
Expand dental care access for underserved communities through **intraoral photos** and **streamlining care options**



Project Deliverables

A total of **124 patients** were examined. The use of an intraoral camera for clinical photos resulted in a **15% increase in the detection of dental caries** compared to standard diagnostic methods. When both radiographs and clinical photos were utilized, there was a 16% increase in the diagnosis of dental caries compared to diagnosis by a public health hygienist alone. Additionally, the intraoral camera revealed that **17% of patients examined had some form of oral pathology**, including dental abscesses, hypoplastic teeth, gingival ulcers. These findings suggest that the combination of radiographs and intraoral camera photos significantly **enhances diagnostic accuracy**, particularly in the identification of both caries and oral pathologies.

Why It Works

Provider Training & Integration: We call train medical providers (e.g., pediatricians, community health workers) to use intraoral cameras, **embedding dental screenings into routine healthcare visits**.

Telehealth & Referral Improvements: Captured images will be **shared digitally** with dental professionals, **enhancing referral quality and speeding up care**.

Proven Success & Scalability: Data from similar programs show **higher detection rates**, improved patient follow-through, and **greater access to care for high-risk populations**.

Cost-Effective & Sustainable: Intraoral cameras are **affordable, portable, and easy to use**, making this approach **scalable and impactful** in community health settings.

References

(1) Pierce KM, Rozier RG, Vann WF Jr. Accuracy of pediatric care providers' screening and referral for early childhood caries. Pediatrics 2002;109(5):E82-2.

(2) American Academy of Pediatric Dentistry. Policy on oral health care programs for Infants, children, adolescents, and individuals with special health care needs. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2022: 54-7.

(3) NIDCR. Oral Health in America (2021). https://www.nidcr.nih.gov/oralhealthinamerica

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