

Seeing, Not Screaming – How Home Use Intraoral Cameras Improve Pediatric Dental Care

For the first time, intraoral camera systems, optimized for home use are now available, encouraging families and especially children to be more aware of oral health and hygiene, and to obtain more timely dental care.

Abstract/Introduction

Dental caries (tooth decay) is the most prevalent chronic disease of childhood.ⁱ Oral health issues and related conditions can first occur at very early ages, yet are avoidable through identification, proper oral hygiene and other preventive care measures. However, at these early ages, it is incumbent on parents (or guardians) to not only clean their child's teeth; they must also educate and motivate the child to develop good oral hygiene habits themselves.

Early engagement in proper oral hygiene and dental care can lead to lifelong benefits. Serious and costly dental problems, as well as systemic health issues can be avoided, while overall well-being, school attendance and socialization are enhanced throughout childhood and beyond.

Intraoral cameras have traditionally cost several thousand dollars, which restricted their benefits to a clinical setting. Affordable intraoral camera systems have recently been introduced which are optimized for home and out-of-office use. These are highly effective in helping parents engage their children in proper oral hygiene while allowing both parents and dentists to monitor the effectiveness of the child's efforts. Moreover, home-use intraoral cameras provide a reliable and convenient way for parents to visually communicate with their pediatric dentist when questions or concerns arise between visits.

Pediatric dentists have an opportunity to improve the overall level of care and communication that they provide their patients by encouraging the use of at-home intraoral cameras, thus proactively engaging both parent and patient between office visits.

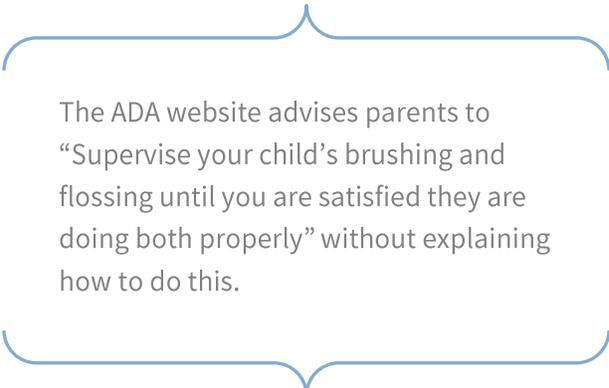
Childhood dental health is a growing problem

Caries and its consequences are among the most prevalent health problems facing infants, children, and adolescents in Americaⁱⁱ, with tooth decay in primary teeth of children aged 2 to 5 years having increased by 15 percent.ⁱⁱⁱ Furthermore, over 50 percent of 5- to 9-year-old children have at least one cavity or filling, and that proportion increases to 78 percent among 17-year-olds.^{iv}

Parent engagement is essential for optimal oral health and for the reduction of future dental care expenses

“Early detection and management of oral conditions can improve a child’s oral health, general health and well-being, and school readiness. Delayed diagnosis of dental disease can result in exacerbated problems which lead to more extensive and costly care.”^v “Untreated dental disease compromises the child’s ability to eat well, sleep well, and function well at home and at school. The unaesthetic nature of untreated dental decay compromises the child’s self-esteem and social development.”^{vi}

Only parents and guardians have the opportunity to teach a child proper oral health and hygiene, and to monitor the results of the child’s efforts on a daily basis. Only parents can schedule dental care for the child. But parents may not know how well a child is brushing, or when a visit should be scheduled.

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The ADA website advises parents to “Supervise your child’s brushing and flossing until you are satisfied they are doing both properly” without explaining how to do this.

Parents should proactively monitor the child’s oral hygiene performance

Children generally brush their teeth by themselves beginning around age 7; by then habits have been formed. In order to ensure these habits are correct, parents should check – and show their children how to check – that they have brushed properly, checking for remaining food particles, signs of gum irritation and plaque buildup. “The presence of visible plaque on children’s (including preschool children) teeth is an effective indicator of caries risk. One study found that that 91% of the children are correctly classified as to caries risk solely based on the presence or absence of visible plaque.”^{vii}

Until now, not only has it been difficult to reach the many tooth surfaces where a child's plaque or food particles can accumulate, it's been even more difficult for parents and children to view them.

Home-use intraoral cameras are an effective and affordable way for parents to visually monitor, reduce anxiety and communicate about a child's oral hygiene

Intraoral imaging technology for patients to use at home now exists, and can be integrated with improved communication tools between patient and dentist. By enabling parents to more fully observe their child's mouth (including anterior incisors, molars, buccal/lingual surfaces and even full arch and orthodontic appliances) on a regular basis, attention will more quickly be drawn to an otherwise hidden issue, prompting them to schedule an office visit for the child.



Parent/patient engagement including the use of at-home intraoral cameras can result in improved oral health for pediatric patients, increased patient loyalty and compliance, and reduced life-time dental treatment costs for the patient.

When intraoral cameras are combined with HIPAA-compliant software, parents have the ability to safely store and view images from any internet-connected location and to securely share them with a dental professional – whenever and wherever concerns arise.

Hands-on imaging technology can increase a child's active engagement and adherence to oral hygiene

For young children, being able to actually see the effectiveness of brushing is a strong feedback mechanism that can lead to the development of proper techniques.

Young children need and want tools that help them explore, solve problems, and demonstrate that they have learned. Inviting children to take a picture of their teeth after brushing to see how well they have done promotes understanding and acts as a self-validation of brushing techniques and effectiveness. At the same time, parents and families can monitor progress, share information, seek advice, and feel more engaged in their child's oral health experience.

Effective technologies are active, hands-on, and empowering; giving the child an appropriate

degree of control; and providing ‘adaptive scaffolds to ease the accomplishment of tasks.’^{viii} As devices and software become more user-friendly and engaging, even younger children are becoming increasingly proficient in their use to accomplish tasks and are engaging in age-appropriate learning activities, such as learning to properly brush their teeth.

The adoption and interest in health related technologies among younger consumers, including parents of young children, is stronger than ever. In a recent study, 54% of respondents were interested in buying an electronic health monitor. Fifty-two percent were interested in buying a fitness monitor device or application.^{ix}

Additionally, home-use intraoral camera system software can provide patients and children with age-appropriate reminders of the care recommendations made during office visits.

Pediatric dental practices can benefit by encouraging the use of at-home intraoral camera systems

By recommending or providing an affordable intraoral camera system to a parent, the practice establishes loyalty, continuity and communication between office visits.

Pediatric practices have the added complexities of dealing with children’s (and parents!) behaviors and anxieties, and often seek to project a friendly, calm and attractive

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Seeing the dentist use an intraoral camera in the office and then having one at home, makes oral hygiene “awesome”.

environment. Through the implementation of patient-empowering tools and systems, pediatric dental practices reap the benefits of these positive associations. In the words of one pediatric patient, “Using the camera to see how well I brush my teeth is awesome”.

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Dental practices can use integrated HIPAA-compliant software to include visual images in recall reminder notices which more strongly encourage parents and patients to return for care, and schedule appointments promptly. Following office visits, care reminders which include images help reinforce home-care recommendations, with the goal of improving overall health while keeping the pediatric practice in the mind of the family.

Parent-provided intraoral images also help to reduce the challenges of “telephone triage” in which a dentist or staff member must try to understand and advise on a dental problem that

they cannot even see. The dissonance between phone descriptions and actual issues can result in the misallocation of time for patient appointments, resulting in upset patients and loss of revenue.

Efficiency in the practice improves when images taken with an intraoral camera are shared by a parent while requesting an appointment. By understanding and anticipating the nature of the visit, scheduling and resource allocation improves.

Home-use intraoral cameras systems can be “linked exclusively” ensuring that images can only be shared with the practice that provided or suggested the system to the parent, yet every member of the family can use the camera to access that practice.



Pediatric dental practices face specific business challenges and should take advantage of every opportunity for marketing distinction.

Commonplace approaches such as child-friendly office design and marketing campaigns can be enhanced by offering a higher degree of concern, accessibility and attention to care through the use of affordable, consumer-friendly intraoral cameras specially designed for home use.



Endnotes

ⁱ National Institutes of Health (U.S.); National Institute of Dental and Craniofacial Research (U.S.). A National Call to Action to Promote Oral Health: A Public-private Partnership Under the Leadership of the Office of the Surgeon General. U.S. Dept. of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health;2003.

ⁱⁱ American Association of Pediatric Dentistry, Guideline on periodicity of examination, preventive dental services, anticipatory guidance/counseling, and oral treatment for infants, children, and adolescents, revised 2013. Downloaded 25 Mar 2014 from http://www.aapd.org/media/Policies_Guidelines/G_Periodicity.pdf

ⁱⁱⁱ downloaded from <http://www.cdc.gov/nchs/pressroom/07newsreleases/oralhealth.htm>

^{iv} A National Call to Action to Promote Oral Health, National Institutes of Health;2003.

^v American Association of Pediatric Dentistry, Guideline on periodicity of examination, preventive dental services, anticipatory guidance/counseling, and oral treatment for infants, children, and adolescents, revised 2013. Downloaded 25 Mar 2014 from http://www.aapd.org/media/Policies_Guidelines/G_Periodicity.pdf

^{vi} California Dental Association. Consequences of untreated dental disease in children. Downloaded 3 Mar 2014 from http://www.cda.org/Portals/0/pdfs/untreated_disease.pdf.

^{vii} Tinanoff, N., Kanellis, M. J., Vargas, C. M. Current understanding of the epidemiology, mechanisms, and prevention of dental caries in preschool children. *Pediatric Dentistry* – 24:6, 2002

^{viii} National Association for the Education of Young Children, 2012. Technology and interactive media as tools in early childhood programs serving children from birth through age 8: A joint position statement of the National Association for the Education of Young Children and the Fred Rogers Center for Early Learning and Children’s Media at Saint Vincent College. Downloaded 27 Mar 2014 from http://www.naeyc.org/files/naeyc/file/positions/PS_technology_WEB2.pdf

^{ix} Accenture Digital Consumer Tech Survey 2014: Racing Toward a Complete Digital Lifestyle: Digital Consumers Crave More <http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Digital-Consumer-Tech-Survey-2014.pdf>



For More Information

MouthWatch plans to publish additional white papers documenting the benefits of remote patient monitoring and home intraoral camera use across a range of market segments and specialties.

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