



Background

Per the 2020 CDC report, the current prevalence of autism spectrum disorders (ASD) has increased to 1:36 individuals in the U.S.¹ Several barriers to appropriate dental treatment exists for individuals with ASD such as communication deficits, intellectual disability, and sensory sensitivity.² The above listed barriers often result in undesirable behaviors during dental visits which can lead to hesitation by certain dental providers to examine and treat patients with ASD.³ Several techniques and therapies have been proven to improve behavior of individuals with ASD in a dental setting such as: social stories and video modeling, pre-visit parental questionnaire, desensitization, environmental modifications, sedation, and general anesthesia.^{3,4,5} These resources, especially video modeling, have been shown to be beneficial for dental-related behaviors outside of the dental office such as improvement in oral hygiene practices.⁶ Based on the increasing frequency of individuals with ASD, it is pertinent that dental providers feel prepared and comfortable to treat more patients with ASD and knowledgeable on tools available to better patients overall dental health and dental experience.

Purpose

This quality improvement (QI) project aims to implement a protocol within The Department of Dentistry at Children's National Hospital (CNH) to improve overall experience for patients diagnosed with ASD during dental visits.

Methods

Upon CNH IRB approval, this QI project involved the creation of a video specifically for CNH Department of Dentistry with the ABC (Autism Behavioral Communications) team. The creation and implementation protocol is as follows:

- Photographs were taken of a model patient following the steps involved with the standard recall and prophylaxis appointment at CNH. These photos were inserted into a presentation with an audio file explaining each photo/step.
- The presentation was uploaded onto an iPad for patient and parental viewing prior to the dental appointment.

All English-speaking patients from ages 3 to 20 identified to have mild ASD were presented the opportunity to partake in the project. 17 caregivers of children with ASD were provided an anonymous post survey after their child's dental visit to assess the effectiveness of the video modeling resource and the satisfaction of the caregivers in helping to improve the quality of their child's dental visit. The survey results were collected and the data was analyzed through Excel.

References

¹Maenner MJ, Warren Z, Williams AR, et al. Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 8 Years — Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2020. *MMWR Surveill Summ* 2023;72(No. 35-2):1–14. DOI: <https://doi.org/10.15585/mmwr.mm7202a1>

²Gandhi R, and Klein U. Autism Spectrum Disorders: An Update on Oral Health Management. *Journal of Evidence Based Dental Practice*. 2014; 14:115–126

³Nelson T, Sheller B, Friedman C, Bernier R. Educational and Therapeutic Behavioral Approaches to Providing Dental Care for Patients with Autism Spectrum Disorder. *Special Care in Dentistry*. 2014; 35:105–113

⁴Vandemeer J, Beamish W, Milford T, Lang T. iPad-Presented Social Stories for Young Children with Autism. *Developmental Neurorehabilitation*. 2013; 18:75–81

⁵Marion I, Nelson T, Sheller B, McKinney C, Scott J. Dental Stories for Children with Autism. *Special Care in Dentistry*. 2016; 36:181–186

⁶Shalabi MASA, Khatib NMA, Eltheeny AAH. Picture Examination Communication System Versus Video Modelling in Improving Oral Hygiene of Children with Autism Spectrum Disorder: A Prospective Randomized Clinical Trial. *Pediatr Dent*. 2022 Jan 15;44(1):25–31. PMID: 35232533.



Figure 1: A snippet of the video modeling resource demonstrating a patient checking in at the front desk



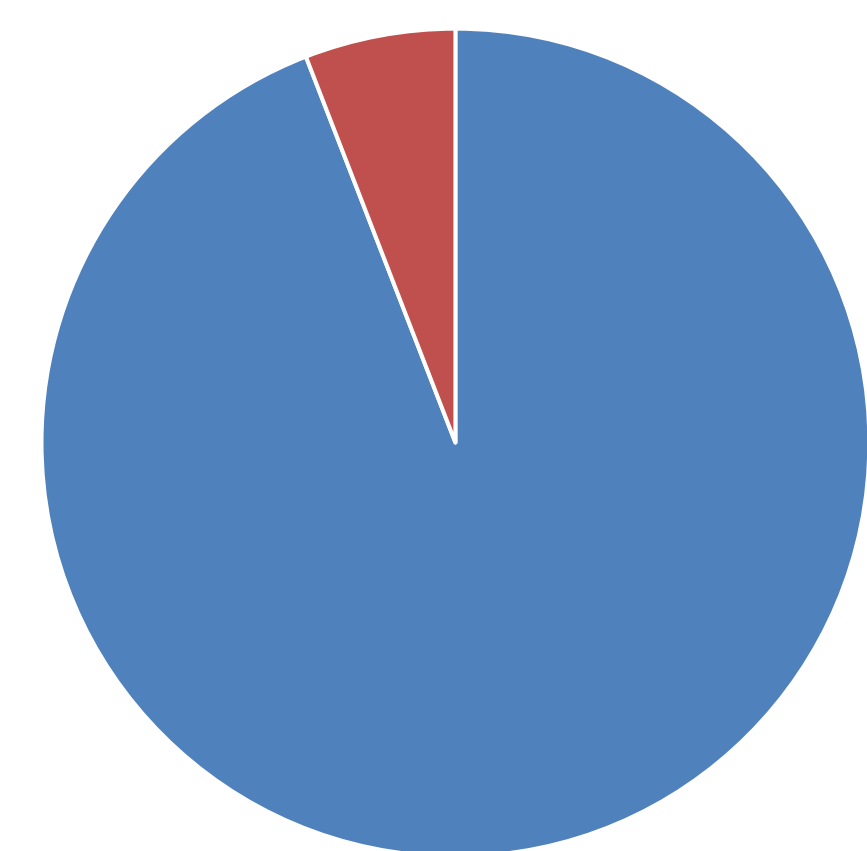
Figure 2: A snippet of the video modeling resource demonstrating a patient sitting for a routine dental exam



Figure 3: A snippet of the video modeling resource demonstrating a patient sitting for a dental prophylaxis

Results

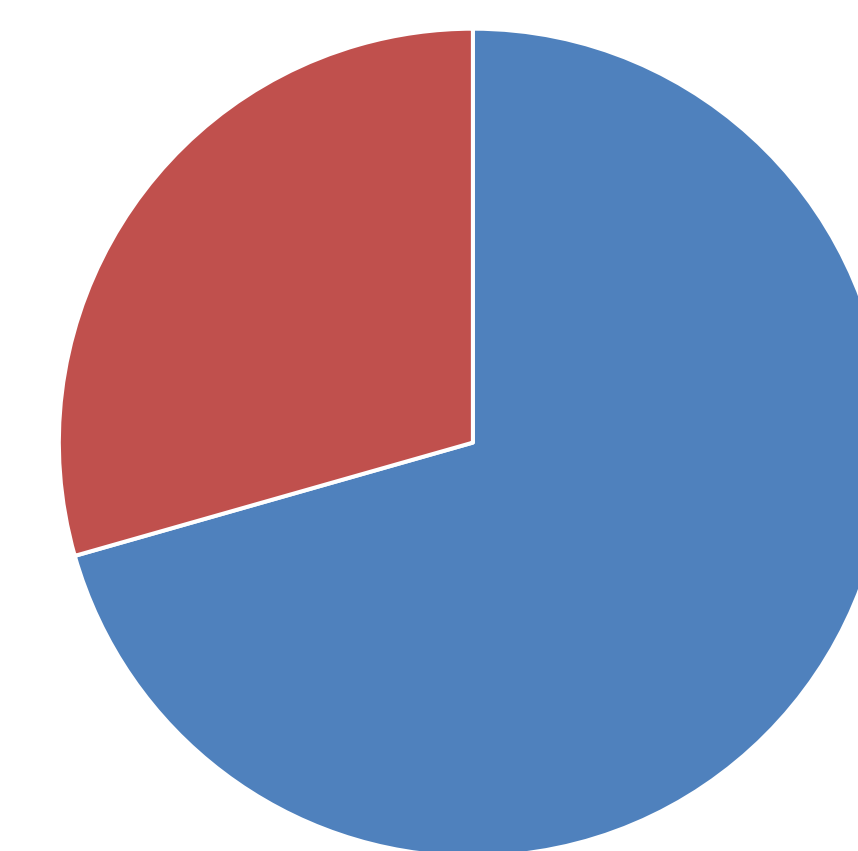
Satisfaction Rate of Video Modeling Resource



■ Highly Satisfied
■ Satisfied

Figure 4: This chart shows caregivers' satisfaction rate after using the video modeling resource compared to other previous dental visits (n=17)

Effectiveness of Video Modeling Resource



■ Highly Beneficial
■ Beneficial

Figure 5: This chart shows the effectiveness of the video modeling resource in improving patient management and cooperation during dental visits (n=17)

Parental Feedback:

- "He did the best he has ever did at the dentist"
- "The video really helped make him ready for the visit/check-up and cleaning. Really great idea."
- "Awesome idea and it definitely helped with my son who is autistic"
- "Thank you for this beautiful questionnaire"
- "Great idea w/ creating a calm and inviting environment with a visual review of what is going to happen during the visit"
- "Video was very helpful. Social story has helped too!"

Discussion

- There are several techniques and therapies that have proven to be effective in improving behavior of individuals with ASD in a dental setting, such as social stories and video modeling; pre-visit parental questionnaires; desensitization, environmental modifications to reduce sensory triggers; sedation and general anesthesia.^{3,4,5}
- Caregiver feedback received from previous quality improvement projects at Children's National Department of Dentistry revealed a desire for development of a video modeling resource. This quality improvement project was pursued to add to the resources already available for improving the dental experience for patients with ASD.
- Out of 17 surveys, 16 caregivers indicated found it to be "Highly Beneficial", 1 reported it to be "Beneficial", and 0 caregivers indicated that it was "Not Beneficial". Thus, 100% of caregivers found the resources to be "Beneficial"
- Out of 17 surveys, 12 caregivers indicated that they are "Highly Satisfied", 5 indicated that they are "Satisfied", and 0 caregivers indicated that they are "Dissatisfied" or "Highly Dissatisfied". Thus, 100% of caregivers were "Satisfied" or "Highly Satisfied" with this dental visit compared to previous dental visits.
- Development of this video modeling was cost effective, and the resource proved to be well received by both patients with ASD as well as families; however, some families discussed increased availability of the video modeling resource on the web.

Conclusion

- Dental care is considered one of the most challenging tasks for individuals with ASD.² This quality improvement project led to the development of an additional resource requested by parents in previous QI studies. This additional resource adds on to the catalog of other resources already available (CNH PECS, dental pre-visit questionnaire, and CNH social story) that may improve care and overall experience for patients with ASD or a working diagnosis of ASD.
- Caregivers reported that a video modeling resource is a beneficial resource to have in improving quality of care and dental appointments for patients with ASD.
- This video modeling resource was made available to patients via an iPad when they presented to CNH dentistry clinic for an appointment. CNH Department of Dentistry currently is working on having this video modeling resource available on the CNH Dentistry website for use prior to any scheduled appointment
- Limitations of this study include that the video modeling resource and post survey are available in English only. With a large population of Spanish speaking patients, it would be of great benefit to develop resources for patients with ASD in Spanish for more universal usage.

Acknowledgments

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