



Understanding Adoption of Zirconia in Private Practice Pediatric Dentistry: A Qualitative Study

Christopher Adams, DDS, MS - Ingeborg De Kok, DDS, MS - Rand Khasawneh, DDS - Jessica Lee, DDS, MS, PhD - Paul Mihas - Tim Wright, DDS, MS

University of North Carolina at Chapel Hill- Adams School of Dentistry



Abstract

Purpose: To understand factors influencing adoption of preformed zirconia crowns in private practice pediatric dentistry. **Methods:** This qualitative study engaged fourteen private practice pediatric dentists that were purposely sampled for a range of experience with preformed primary tooth zirconia crowns. Participants were interrogated using semi-structured questions as a guide during an interview conducted via Zoom video conferencing. Participants' transcripts were generated and then systematically analyzed using MAXQDA 2022. Qualitative validity was confirmed with Cohen's Kappa and analyst triangulation. **Results:** The most prominent factors reported as affecting adoption of zirconia crowns are material properties, parent expectations, intra-residency exposure and pharmacologic behavior management. **Conclusion:** While all pediatric dentists were aware of preformed zirconia crowns and their indications, great variability exists in providers' willingness and comfort level with delivering zirconia crowns. Provider and parent specific factors outweighed empirical evidence when treatment planning zirconia crowns. **Practical Implications:** Understanding how technology is adopted in clinical practice can guide industry innovation and improve knowledge dissemination within clinical dentistry.

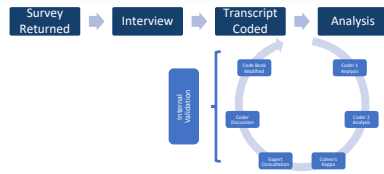
Objectives

- Determine which factors play important roles in clinical decision making regarding zirconia crowns
- Provide context for future quantitative study regarding zirconia adoption in private practice



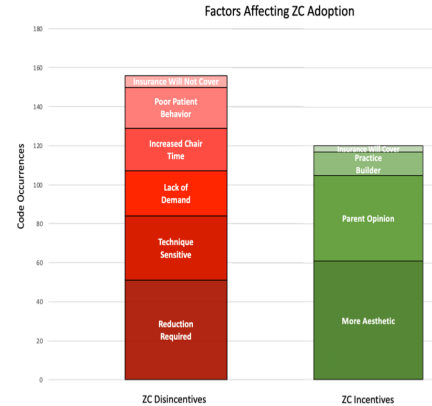
Methods

- IRB 21-0496 approval
- Interview guide developed
- Pre-interview questionnaire and consent sent out to participants based on maximum variation sampling and snowball sampling technique
- Virtual, synchronous interview conducted using interview guide (n=14)
- Interview audio transcribed using professional transcription service
- Qualitative analysis within MAXQDA22
- Code system developed using an a priori list of potential zirconia adoption factors. This list was modified based on iterative analysis during the qualitative analysis phase
- Internal validation via researcher triangulation, intercoder agreement, Cohen's Kappa analysis and codebook revision at Initial, Early, Middle and Late timepoints



Cohen's Kappa (0.65 threshold)	
Initial	0.39
Early	0.82
Middle	0.71
Late	0.72

Results & Representative Quotes



- 8:61-67 "I mean, like you think you've not been there. And then I look and go, oh my God, [my associate] did eight crowns. And they look all real."
- 11:20-22 "You've got to get those crowns very passive subgingival. So you're creating what I call a bloody mess. You can't switch halfway through, go, oh, I think I'll switch and do strip crowns now that I've prepped for a real mess."
- 11:52-55 "I was reluctant to get into [ZC], but the more I read the more I learned, they were very strong, and they worked so, posterior, I don't try to talk to anybody about them, they have to ask for [them]."
- 6:48- 49 "if [the parents] are very adamant about having a white crown, they're more willing to proceed with IV sedation than trying to do it in the office just with nitrous, knowing that if behavior becomes an issue, a silver crown might have to be placed."

Conclusions

- General anesthesia is the treatment setting of choice for zirconia crown placement
- Participants were most concerned with zirconia crown Reduction over other factors
- Participants noted that Parent Opinion and Aesthetics were the most important incentives to zirconia crown usage
- Quantitative analysis regarding impact of residency training and patient demographics is warranted
- Participants were universally aware of zirconia crown, but did not universally offer zirconia crown as a treatment option regardless of clinical indications
- Additional parent-sided qualitative analysis and investigation into how providers decide to disclose zirconia crowns as a treatment option when not prompted by parents is warranted

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Additional references available, upon request