

Lesion Sterilization and Tissue Repair: Use, Knowledge, and Attitudes of Pediatric Dentist Illinois & Wisconsin. A Pilot Study.

Alsaleh M*, Gonzalez C², Gungor HC², Hodgson B²

*University of Illinois, Department of Pediatric Dentistry

²Marquette University School of Dentistry



Introduction

Premature loss of primary molars, primarily due to cavities, can significantly impact dental arch integrity. Effective treatment modalities, including pulp therapy and dental restorations such as stainless steel crowns, aim to preserve the tooth's function and alleviate discomfort. However, extraction may be necessary based on the tooth's restorability and other factors. Lesion sterilization and tissue repair (LSTR) is a nonvital therapy designed for necrotic primary molars, utilizing a minimally invasive approach to disinfect the root canal system without extensive instrumentation. This method has shown success in maintaining these teeth as natural space maintainers until the permanent molars erupt, with clinical indicators of success including the absence of infection symptoms and normal tooth mobility.

Objectives

This study assessed the knowledge, attitudes, and use of LSTR among pediatric dentists in Illinois and Wisconsin, identifying barriers to its implementation.

Materials and Methods

- **Ethical Approval:** Institutional Review Board of the University of Illinois Chicago (STUDY2023-0247)
- **Study Population:** 308 active AAPD members in Illinois and Wisconsin (adjusted from an initial 341 to exclude general practitioners, out-of-state dentists, and administrative members).
- **Survey Design:**
 - **Format:** Online questionnaire via Qualtrics.
 - **Components:** 19 questions covering demographics, clinical practice, knowledge, and attitudes toward LSTR.
- **Survey Content:**
 - Demographics
 - Frequency of LSTR use, clinical indications, decision-making factors, and scenarios comparing LSTR vs. extraction.
 - Perceived barriers and factors influencing LSTR adoption.
 - Knowledge-based questions on LSTR training, years since residency, and practice setting (academia, private practice, hospital, public health)
- **Statistical Methods:** Descriptive statistics, logistic regression, Fisher exact test, Cochran-Armitage Trend Test, and binomial test using JMP® Version 17

Results

- **20% response rate** (65 pediatric dentists).
- **78.5% were familiar** with LSTR, yet only **20.6% actively used it**.
- **92.3%** of respondents replied that they would use LSTR for a necrotic primary second molar prior to eruption of PFM

Question	Response	Count	Percentage
Currently practicing pediatric dentist?	Yes	65	100.0%
	No	0	0.0%
State of Practice	Illinois	44	67.7%
	Wisconsin	21	32.3%
Board Certification Status	Board Certified	46	70.8%
	Board Eligible	16	24.6%
	Not Certified/Eligible	3	4.6%
Residency Program District	District VII (IL, IN, KY, WI)	34	54.8%
	District II (NY, NJ)	7	11.3%
	District VI (OH, MI, WV)	4	6.5%
	Other Districts	16	25.4%
	Urban	59	90.8%
Practice Setting	Rural	6	9.2%
	Private Practice (Solo/Group)	55	84.6%
Nature of Primary Practice	Academic (Intramural)	6	9.2%
	Hospital-Based	3	4.6%
	Community/Public Health	1	1.5%

Table 1 Respondents Demographics

- **Academic intramural practices had the highest LSTR usage (80%)**, while private practices had the lowest (12.96%).
- Significant associations found between LSTR use and **practice type** (p=0.0002)
- Significant associations found between LSTR use and **familiarity/awareness (p<0.0001)**.
- Apprehensive behavior is a primary factor influencing practitioners to opt for extraction over pulp therapy

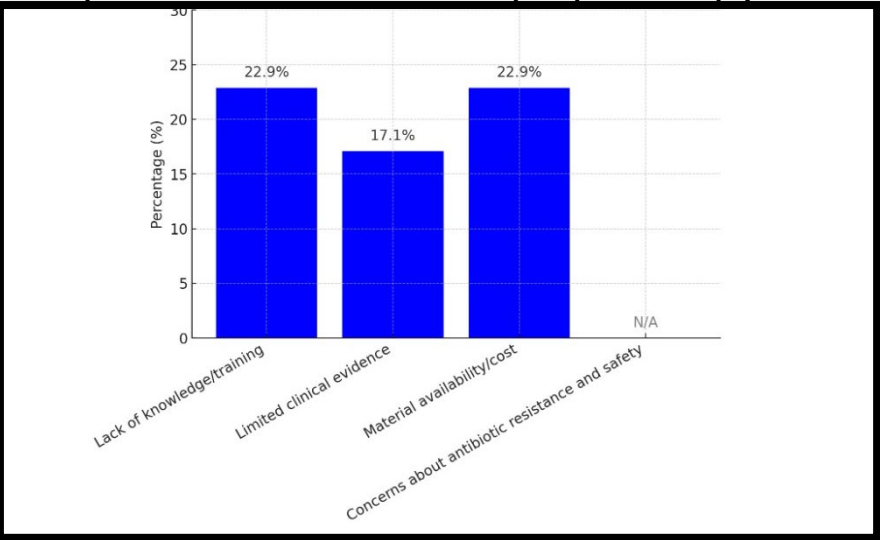


Fig 1 Primary barriers for LSTR use

Conclusion

Despite awareness of LSTR, its clinical adoption remains limited due to gaps in training, restricted material accessibility, and concerns regarding efficacy. Greater emphasis during residency training and continuing education, along with improved material access, is essential to facilitate broader implementation.

References

