

# Cracked tooth symptoms as predictors of subsequent treatment: National-Dental-PBRN study

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## INTRODUCTION

There is limited evidence regarding the best way to identify and treat cracked teeth. This Cracked Teeth Registry (CTR) was established to create a more evidence-based, real-world approach to obtaining diagnosis and treatment data from patients with cracked teeth seen in routine clinical practice. The purpose of this study was to determine whether symptoms in cracked teeth predict treatment completed or recommended on the tooth within the following one-year period.

## METHODS

Dentists in the **National Dental Practice-Based Research Network (PBRN;** [www.NationalDentalPBRN.org](http://www.NationalDentalPBRN.org)) enrolled subjects each with a single, vital posterior tooth with at least one observable external crack. Data were collected at the patient-, tooth- and crack- level. Teeth were determined to be symptomatic if they were spontaneously painful, or painful to cold and/or bite testing. Odds ratios (OR) comparing types of pain to recommendations for treatment at baseline and at one-year follow-up were calculated adjusting for clustering within practitioner using generalized models.

## RESULTS

209 network dentists enrolled 2,858 subjects/cracked teeth (one per patient) at baseline with an asymptomatic or symptomatic cracked posterior tooth; 1,818 were recommended for monitoring at baseline, of which 1,646 were seen at 1-year follow-up. 100 of the 1,646 were treated or recommended for invasive treatment (98% restorative) after baseline and up to 1-year. Table shows Odds Ratio (OR) for symptom status to treatment recommendations at baseline and 1-year follow up:

Characteristics	Invasive Treatment <sup>1</sup> (N=100)		Monitor at 1 year visit (N=1544)		OR	p
	N	%	N	%		
<b>Baseline symptomology</b>						
No pain	64	64%	1,021	66%		
Any pain	36	36%	523	34%	1.1	0.6
<b>Type of pain<sup>2</sup></b>						
- Cold	29	29%	452	29%	1.0	0.9
- Biting	6	6%	88	6%	1.1	0.8
- Spontaneous	8	8%	85	6%	1.5	0.4
<b>Symptomology at 1 year visit</b>						
- No pain	55	55%	1,151	75%		
- Any pain	38	38%	364	24%	2.4	0.002
- Missing <sup>3</sup>	7	7%	30	1%		
<b>Type of pain</b>						
- Cold	32	32%	330	21%	1.9	0.02
- Biting	16	16%	33	2%	9.1	<0.001
- Spontaneous	8	8%	31	2%	4.2	0.03

<sup>1</sup>Extraction, restoration, endodontics or combination; <sup>2</sup>Referent for each type of pain is no pain; <sup>3</sup>Missing, cold (30 monitor, 3 rec tx), biting (18 monitor, 5 rec tx), spontaneous (0)

## RESULTS

1,544 (94%) of cracked teeth recommended for monitoring at baseline were recommended for monitoring at 1-year follow-up. Odds ratio for correlation of symptoms exhibited by cracked teeth planned for monitoring at baseline to those teeth subsequently requiring treatment were non-significant (increased odds of 2%-49%, all P>0.2). OR for correlation of symptoms exhibited at the 1-year follow up visit to those teeth subsequently requiring treatment were significant overall and when each type of pain was considered individually (OR=1.9-9.1). When considered together, only biting pain at the 1-year follow-up retained statistical significance (OR=7.7, P<0.001).



## DISCUSSION & CONCLUSION

Baseline symptoms among cracked teeth recommended for monitoring at baseline were not predictive of subsequent treatment in the initial 1-year follow-up. Symptoms assessed at the 1-year follow-up visit, primarily biting pain, were strongly associated with recommendations for treatment.