

clinical research performed in academic settings by academic dentists (7-9). The Dental Practice-Based Research Network (DPBRN) originated in Alabama and expanded to include 4 other regions (12). The Alabama portion of the DPBRN served as the setting for the present study.

This study sought to quantify the incidence of RCT failure in private practice settings, using 3 different definitions of treatment failure; to quantify the typical length of time required for an endodontically treated tooth to receive a permanent restoration in a private practice setting; to test the hypothesis that receipt of a permanent restoration is a significant predictor of treatment failure; and to test the hypothesis that other factors are significant predictors of treatment failure. A retrospective cohort study was designed to meet these objectives.

ABSTRACT

This study sought to quantify the incidence of root canal treatment (RCT) failure and identify its predictors in root canals that were performed or referred by general dentistry practices in a practice-based research network (PBRN). This retrospective cohort study involved 174 endodontically treated teeth. Mean duration from initial therapy to follow-up was 8.6 years. Permanent restorations were ultimately placed in 89% of teeth, although 18% of teeth were ultimately extracted anyway. Receiving a permanent restoration was a significant predictor of treatment failure (in other words, patients who did not receive a permanent restoration were more likely to experience RCT failure), whether failure was determined clinically or radiographically. This study of PBRN practices suggests a higher failure rate compared with studies that utilized highly controlled environments or populations with high levels of dental insurance.

MATERIALS AND METHODS

Practices in the community were identified based on the Alabama portion of the DPBRN. Dentist practitioner-investigators were recruited through mailings to licensed dentists. As part of enrollment in the DPBRN, all practitioner-investigators complete a 101-item enrollment questionnaire about themselves and their practice characteristics. Surveys in the literature have demonstrated that DPBRN dentists have much in common with dentists at large (13).

Recruitment methods

Practices consisting of general dentists were identified for inclusion in the current study if they were enrolled in the DPBRN, had a practice address in Alabama, and performed or referred more than 20 root canals each month (based on a question posed in the enrollment questionnaire). From the 25 practitioner-investigators who met these criteria and expressed a

desire to be included in the study, 13 were included in the study after a visit to the practice confirmed that the practice's dental charts would consistently include the treatment information and radiographs necessary for the study. A follow-up date was arranged for the research assistant to screen charts for potential cases. Because most practices had hundreds of charts, a random number generator was used to identify a random start for chart review.

Chart abstraction procedures

A research assistant whose background included training as a certified dental assistant was trained in chart abstraction, using dental charts from dental schools and private practices. Following several training sessions, she achieved standardization in proper abstraction procedures specific to this study and achieved high intra-rater reliability. This research assistant contacted all of the offices, screened the charts, abstracted and entered data, and scanned radiographs.

Dental charts were used to abstract dates of all visits in which any treatment was administered to endodontically treated teeth. RCT was defined as American Dental Association (ADA) codes 3310, 3320, or 3330; in addition, the researchers recorded the tooth or areas treated; ADA codes for all procedures performed on that tooth; a description of the procedure code (to ensure that the code matched its description); whether the tooth served as an abutment for a removable partial denture (RPD), overdenture, or fixed partial denture; whether the RCT was done by going