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THE USE OF IMPLANTS VS ENDODONTICS: PRACTITIONER ATTITUDES IN
2007

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of
Science in Dentistry at Virginia Commonwealth University.

by

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Acknowledgement

I would like to acknowledge Erick Jansson for his contributions and help with database creation and data entry, Curtis Packer for his efforts and help with the design of the survey, Al Best Ph.D for statistical analysis, and the endodontic faculty for all of their time and help.

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Abstract

THE USE OF IMPLANTS VS ENDODONYICS: PRACTITIONER ATTITUDES IN

2007

By Gardiner M. Packer, DDS

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Dentistry at Virginia Commonwealth University.

Virginia Commonwealth University, 2008

Major Director: Karan J. Replogle DDS, MS
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The purpose of this study was to determine what factors influence dentists when deciding whether to place an implant or perform endodontic retreatment. Null hypothesis: Dentists today are no more likely to place an implant than to perform endodontic retreatment. A twelve-item questionnaire was mailed to 525 general dentists and specialists who are members of the Richmond Dental Society. Response rate was 61.9%. The questionnaire included items on demographics, practice profile and cases of failing endodontic therapy which participants were asked to consider and chose between endodontic retreatment or

implant placement. The relationship between the treatment choices and the characteristics of each dentist was assessed using a chi-square analyses and logistic regression analyses. Generally practitioners preferred retreatment (66%). This preference for retreatment varied between 25.5% and 85.9%. Associations were found between years of experience and implant use. In those practitioners with 10 years or less experience the odds of choosing an implant were higher than practitioners with more than 10 years of experience. Associations were also found between those who place implants vs. those who do not. The odds of choosing an implant verses retreatment were lower in those who did not place implants versus those who did. In conclusion, it appears that clinicians participating in this study in general still consider endodontic retreatment to be a viable treatment option prior to implant placement. However, this varies greatly with years of experience and the use of implants in practice.

CHAPTER 1: INTRODUCTION

Endodontics has been performed since the 19th century to maintain teeth that would have otherwise been extracted. With the advent of dental implants, new treatment modalities are available to replace missing teeth. Determining whether to perform root canal therapy to maintain teeth or to extract and place an implant can be difficult. The decision should be based on sound clinical judgment and an understanding of the risks and benefits with either choice (9).

The success and predictability of endodontics is well documented with successful outcomes as high as 97%.⁽¹⁾ Nonsurgical retreatment, in general, has a lower success rate than initial nonsurgical root canal therapy (2, 3, 17). The success rate of retreatment is about 75% (3, 17). There is, however, considerable variation in treatment planning philosophy among clinicians when encountering patients with pulpally involved teeth with a questionable prognosis (4, 5, 6, 7, 8).

In the past 10 years the use of dental implants to replace missing teeth has increased significantly. With the improvement of this technology, predictability and longevity of implants has approached the cusses of endodontic therapy (12). Initial nonsurgical root canal treatment and the replacement of a single tooth with an implant are both viable treatment options. Favorable, yet variable, success rates have been reported for each treatment modality in multiple outcome studies (13, 14, 15). Due to these findings,

dental professional may opt to use an implant instead of performing endodontic retreatment.

The decision between the retention of failing endodontically treated teeth as opposed to extraction and implant treatment is a clinical decision that requires a careful evaluation of multiple factors that may influence the outcome of the proposed treatment (9, 10). Tooth variables (periodontal status, restorative status, endodontic status), implant variables (site, bone quality/quantity) and patient variables (systematic health status, economics, compliance and motivation) must also be considered in the development of a predictably successful long-term treatment plan (9, 10).

The purpose of this study is to determine whether dentists today are more likely to place an implant or perform endodontic retreatment and whether the use of implants in practice, the use of retreatment in practice, or years of experience, affect dentists attitudes toward the use of implants verses RCT. The Null hypothesis is: Dentists today are no more likely to place an implant than to perform endodontic retreatment.

CHAPTER 2: MATERIALS AND METHODS

A one-page, single-sided questionnaire was mailed to 525 oral health care professionals who were members of the Richmond Dental Society. A cover letter and postage-paid return envelope were included. Three hundred and twenty five surveys were returned, a 61.9% response rate. The questionnaire included two items on demographics, four items on practice profile, and six questions related to radiographic images. The six images included radiographs of six teeth which had been endodontically treated and appeared radiographically to be failing. In addition to the radiographs, a patient history and current symptoms were described. The participants were asked to decide between endodontic retreatment and extraction with implant placement. Survey participants included general dentists and specialists. To ensure anonymity, no personal information, including return address, was requested. Prior to sending out the survey, a notification postcard was sent to inform participants of the coming survey. Returning the survey was accepted as voluntary consent to participate in the study.

CHAPTER 3: STATISTICAL ANALYSIS

The relationship between the treatment choices and the characteristics of each dentist was assessed using a chi-square analyses and logistic regression analyses. For each of the treatment questions three analyses were performed. First, a bivariate chi-square analysis described the relationship between each practitioner characteristic and the treatment choice (termed the “unadjusted analysis”). Second, a multivariable logistics regression tested all of the dentist characteristics for their relationship to the treatment choice (the “adjusted analysis”). Finally, if more than one dentist characteristic was significant in the adjusted analysis, only the significant predictors were included in a final model that described the relationship between dentist characteristics and treatment choice.

CHAPTER 4: RESULTS







The characteristics of each dentist surveyed are shown in Table 1. Of the practitioners that responded 97% were still in practice, 75.2% perform endodontic treatment, 33.3% perform endodontic retreatment, and 81.2% either place or restore implants.

Table 1: Characteristics of the Surveyed Dentists

Questions	Count (%)			
	Yes		No	
1. Do you currently practice?	306 (97.5)		8 (2.5)	
2. Years of practice?	0-10 62 (19.8)	11-20 80 (25.6)	21-30 89 (28.4)	> 30 82 (26.2)
3. Do you perform endodontic treatment in your practice?	236 (75.2)		78 (24.8)	
4. Do you perform endodontic re-treatment in your practice?	108 (33.3)		216 (66.7)	
5. Do you place or restore implants in your practice?	255 (81.2)		59 (18.8)	

The number and percentage of treatment choices for each condition are shown in Table 2. Generally, practitioners prefer re-treatment (66%) over extraction and implant placement, as indicated in question #6. However, in specific instances surveyed (question #7-12), this preference for re-treatment varied between 25.5% and 85.9%.

Table 2: Treatment Choices

Questions	Count (%)		
	Ext/Implant	ReTx	
6. Which treatment do you feel has the best long term prognosis?	106 (33.8)	208 (66.2)	
7. Patient presents with a draining sinus tract and tenderness to percussion on #19. Patent says that the root canal was done a couple of years ago. In your opinion, what would you recommend to your patient?	48 (15.4)	264 (84.6)	
8. Patient presents with tenderness to palpation and percussion with #8. Patient states periodic swelling in the area and adjacent teeth are vital. The RCT was done about one year ago. In your opinion, what would you recommend to your patient?	128 (41.8)	178 (58.2)	
9. Patient presents to your office 7 months after having had root canal therapy #31. The radiolucency has increased in size and there is a sinus tract. The tooth is asymptomatic. In your opinion, what would you recommend to your patient?	159 (51.8)	148 (48.2)	
10. Patient presents to your office due to discomfort with #7. The tooth is tender to palpation and percussion. The tooth has 3mm probe depths and a draining sinus tract. The RCT was done 2 years ago. In your opinion what would you recommend to your patient?	168 (54.5)	140 (45.5)	
11. Patient presents with tenderness to percussion and palpation on #3. Periodontal status is within normal limits. The RCT was done 2 years ago according to the patient. In your opinion what would you recommend to your patient?	228 (74.5)	78 (25.5)	
12. Patient presents with a draining sinus tract adjacent to tooth #23. The tooth is tender to percussion and palpation and adjacent teeth test vital. Patient states that the RCT was done several years ago. In your opinion what would you recommend to your patient?	44 (14.1)	269 (85.9)	

Question #6 (Table 2) asked generally, “Which treatment do you feel has the best long term prognosis?” The relationships between the characteristics of the surveyed dentist

and responses to this question are shown in Table 3. The unadjusted and adjusted analyses indicated that only years of practice (p -value = 0.0003) and the placing or restoring of implants (p -value < .0001) were related to the choice of implant as versus retreatment in this general situation. Currently practicing or performing endodontic treatment and retreatment were not related to the choice of implant placement or retreatment ($ps > 0.17$).

Table 3: Relationships Associated with Question #6

Current Practice	...best long term prognosis		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	5	2	0.85	0.3563	0.13	0.7202
Yes	220	38				
Years of practice						
0-10	51	1	13.03	0.0046	18.51	0.0003
11-20	53	13				
21-30	61	11				
> 30	59	15				
Do you perform endodontic treatment in your practice?						
No	57	7	1.21	0.2718	1.91	0.1666
Yes	168	33				
Do you perform endodontic re-treatment in your practice?						
No	151	22	2.13	0.1442	0.85	0.3570
Yes	74	18				
Do you place or restore implants in your practice?						
No	27	19	24.14	<.0001	30.13	<.0001
Yes	198	21				

In those practitioners with 10 or less years of practice experience, 98% chose an implant in this clinical case. In each of the other groups of years of experience, there was no difference in the percentage of those choosing an implant (82% overall). In those practitioners who do not place implants in their practice, 59% chose an implant and in those who do place implants, 90% chose an implant.

In question #7 through 12 clinical cases were presented in which each practitioner was asked to make a clinical decision for retreatment or extraction with implant placement. The relationship between the practitioner demographics (Table 1) and case treatment choices (Table 2) varied case by case.

The relationships between the characteristics of the surveyed dentist and responses to question #7 are shown in Table 4. The unadjusted and adjusted analyses indicated that only years of practice (p-value = 0.0104) and the performance of retreatment (p-value = 0.0120) were related to the choice of implant versus retreatment in this situation. Current practice, performing retreatment and use of implants in practice were not related to the choice of implant vs. retreatment ($ps > 0.07$).

Table 4: Relationships Associated with Question #7

Current Practice	... tenderness to percussion on #19		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	0	7	2.37	0.1239	1.94	0.1632
Yes	48	257				
Years of practice						
0-10	17	45	9.40	0.0245	11.27	0.0104
11-20	10	69				
21-30	8	80				
> 30	12	70				
Do you perform endodontic treatment in your practice?						
No	17	60	3.30	0.0694	6.31	0.0120
Yes	31	204				
Do you perform endodontic re-treatment in your practice?						
No	30	177	0.04	0.5427	3.26	0.0710
Yes	18	87				
Do you place or restore implants in your practice?						
No	8	51	0.19	0.6619	0.49	0.4855
Yes	40	213				

In those practitioners with 10 or less years of practice experience, 27% chose an implant in this situation. In the other groups of years of experience, there was no difference in the percentage who chose an implant (12% overall). In those practitioners who do not perform endodontic treatment in their practice, 22% chose an implant and in those who did perform endodontic treatment, 13% chose an implant.

The relationships between practitioner characteristics and the treatment recommendation for question #8 are shown in Table 5. As is seen, none of the characteristics were significantly related to the treatment recommendation (p-values > 0.05).

Table 5: Relationships Associated with Question #8

Current Practice	...tenderness ... #8		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	3	4	0.00	0.9556	0.05	0.8213
Yes	125	174				
Years of practice						
0-10	25	37	2.54	0.4689	2.51	0.4733
11-20	36	40				
21-30	37	48				
> 30	29	53				
Do you perform endodontic treatment in your practice?						
No	28	48	1.04	0.3071	0.99	0.3206
Yes	100	130				
Do you perform endodontic re-treatment in your practice?						
No	85	120	0.03	0.8531	0.01	0.9054
Yes	43	58				
Do you place or restore implants in your practice?						
No	20	34	0.63	0.4291	0.45	0.5016
Yes	108	144				

The relationships between practitioner characteristics and the treatment recommendation for question #9 are shown in Table 6. The unadjusted and adjusted analyses indicated that only years of practice (p-value = 0.0491) and the placing or restoring of implants (p-value < 0.0038) were related to the choice of implant versus retreatment in this situation. Currently practicing or performing endodontic treatment and retreatment were not related to the choice of implant placement vs. retreatment ($ps > 0.26$)

Table 6: Relationships Associated with Question #9

Current Practice	...RCT ... #31		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	5	2	1.15	0.2841	1.26	0.2619
Yes	154	146				
Years of practice						
0-10	23	39	9.65	0.0218	7.86	0.0491
11-20	39	39				
21-30	45	40				
> 30	51	30				
Do you perform endodontic treatment in your practice?						
No	39	38	0.05	0.8168	0.22	0.6361
Yes	120	110				
Do you perform endodontic re-treatment in your practice?						
No	106	98	0.01	0.9334	0.21	0.6434
Yes	53	50				
Do you place or restore implants in your practice?						
No	19	38	9.67	0.0019	8.38	0.0038
Yes	140	110				

In those practitioners with 10 or less years of practice experience, 37% chose an implant in this situation. In the other groups of years of experience there was a gradual increase (from 50% to 53% to 63%). In those practitioners who do not perform endodontic treatment in their practice, 33% chose an implant and in those who did perform endodontic treatment, 56% chose an implant.

The relationships between practitioner characteristics and the treatment recommendation for question #10 are shown in Table 7. The unadjusted and adjusted analyses indicated that only years of practice (p-value = 0.0007) and performing NSRCT (p-value < 0.0443) were related to the choice of implant versus retreatment in this

situation. Current active practice and the use of retreatment and implants in practice were not related to the choice of implant vs. retreatment ($ps > 0.12$).

Table7: Relationships Associated with Question #10

Current Practice	... discomfort ... #7		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	3	5	0.96	0.3268	0.25	0.6150
Yes	165	135				
Years of practice						
0-10	47	15	15.19	0.0017	17.05	0.0007
11-20	36	40				
21-30	44	45				
> 30	40	40				
Do you perform endodontic treatment in your practice?						
No	48	28	3.05	0.0806	4.04	0.0443
Yes	120	112				
Do you perform endodontic re-treatment in your practice?						
No	116	87	1.62	0.2034	0.07	0.7953
Yes	52	53				
Do you place or restore implants in your practice?						
No	28	30	1.13	0.2881	2.45	0.1175
Yes	140	110				

In those practitioners with 10 or less years of practice experience, 76% chose an implant in this situation. In each of the other groups of years of experience there was no difference in the percentage who chose an implant (49% overall). In those practitioners who do not perform endodontic treatment in their practice, 63% chose an implant and in those who did perform endodontic treatment, 52% chose an implant.

The relationships between practitioner characteristics and the treatment recommendation for question #11 are shown in Table 8. The unadjusted and adjusted analyses indicated that only the placement of implants ($p\text{-value} < .00011$) was related to

the choice of implant versus retreatment in this situation. That is, in those who do not place or restore implants, 56% would recommend implants whereas in those who do place implants, 76% would recommend implants. Current active practice, years of practice and the use of endodontic treatment or retreatment in practice, were not related to the choice of retreatment vs. implant.

Table 8: Relationships Associated with Question #11

Current Practice	... tenderness to percussion ... #3		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	6	1	0.53	0.4650	0.60	0.4410
Yes	222	77				
Years of practice						
0-10	42	19	3.43	0.3307	1.91	0.5910
11-20	55	21				
21-30	64	23				
> 30	66	15				
Do you perform endodontic treatment in your practice?						
No	58	19	0.04	0.8492	0.21	0.6507
Yes	170	59				
Do you perform endodontic re-treatment in your practice?						
No	151	53	0.08	0.7803	0.05	0.8174
Yes	77	25				
Do you place or restore implants in your practice?						
No	32	25	11.43	0.0007	10.59	0.0011
Yes	196	53				

The relationships between practitioner characteristics and the treatment recommendation for question #12 are shown in Table 9. The unadjusted and adjusted analyses indicated that years of practice (p-value < .0001) and the performance of endodontic treatment (p-value < .0150) was related to the choice of implant versus

retreatment in this situation. Current active practice, the use of retreatment or implants in practice were not related to the choice of implant vs. retreatment ($ps > 0.12$)

Table 9: Relationships Associated with Question #12

Current Practice	... draining sinus tract ...		Unadjusted		Adjusted	
	Ext-Implant	Retreatment	Chi-sq.	p-value	Chi-sq.	p-value
No	2	6	0.69	0.4063	2.36	0.1245
Yes	42	263				
Years of practice						
0-10	19	43	17.01	0.0007	21.38	<.0001
11-20	7	72				
21-30	11	78				
> 30	6	76				
Do you perform endodontic treatment in your practice?						
No	17	60	5.01	0.0253	5.91	0.0150
Yes	27	209				
Do you perform endodontic re-treatment in your practice?						
No	34	173	3.00	0.0831	0.35	0.5540
Yes	10	96				
Do you place or restore implants in your practice?						
No	9	50	0.09	0.7710	0.41	0.5217
Yes	35	219				

In those practitioners with 10 or less years of practice experience, 31% chose an implant in this situation. In the other groups of years of experience there was no difference in the percentage who chose an implant (10% overall). In those practitioners who do not perform endodontic treatment in their practice, 22% chose an implant and in those who did perform endodontic treatment, 11% chose an implant.

Overall, whether or not the clinician was currently practicing had no affect on the choice of implant vs. retreatment. In four of the seven choices regarding treatment, fewer years of practice predisposed the practitioner toward implant placement. However, in the

case associated with question #8 (Table 2) there was no trend and in the case associated with question #9 the inverse was true and more experienced practitioners were predisposed toward implants. In three of seven cases (#7, 10, and 12), performing nonsurgical root canal treatment predisposed the practitioner towards retreatment. In the other four cases there was no affect. Performing retreatment in practice had no affect in any of the cases presented. Using implants in practice predisposed to implant placement in questions #6, 8, 11 but in questions 7, 9, 10, 12 the use of implants in practice was not related to treatment choice.

CHAPTER 5: DISCUSSION

The purpose of this study was to see if clinicians today favor endodontic retreatment or implants. As is evident by the results of this study the treatment decision varies on a case by case basis. To a large extent this was expected. Numerous respondents, via hand written note on the survey, stated that the treatment decisions vary on a case by case basis. Other respondents, also via hand written note, stated that they would have liked more information so that they could have made a better treatment decision. This was an understandable concern. The amount of information presented in each case was discussed at length while creating the survey. It was felt that if more information was given in the presented cases, the researcher would have been dictating or leading the respondent rather than receiving a survey of the clinician's opinion. Due to the concerns of lack of information given some of the respondents did not answer every question which is why the tables show a variable number of responses to each question.

There were also various write-in responses to some of the cases presented. The responses varied from definitive treatment such as endodontic surgery, antibiotic therapy, bridge, cantilever bridge and to "just watch the situation." In these cases it was decided to record this as a non-response, except in the case of endodontic surgery. It was felt that this fell under endodontic retreatment and was recorded as such.

Generally practitioners preferred retreatment (66%). But, in specific instances surveyed here, the preference for re-treatment varied between 25.5% and 85.9%. Of the

six cases presented in this study, retreatment was favored in three cases and implant placement was favored in three cases. In four of the seven treatment related questions, practicing less than 10 years predisposed the practitioner toward implant placement. This was especially evident in question #6 in which of the 52 respondents that have been practicing 10 years or less only one responded that endodontic retreatment had a more favorable long term prognosis. This finding may be related to current dental education. Dental schools appear to be increasing their training and expanding their curricula to include implants. Students are taught that implants have a very high survival rate and may view them as a better long term option than endodontic retreatment. Also, dental students may not receive adequate education on endodontic retreatment as a viable option. This may lead to a predisposition toward the use of implants due to the fact that they are more familiar with that treatment option. In addition there is more advertisement and continuing education offered related to implants than endodontic retreatment. Again, this may predispose younger clinicians towards the use of implants. Note that in question #8 the younger practitioners favored retreatment. This is interesting because in all the other instances where years of practice were significant fewer years of practice predisposed the practitioner towards implant placement except in this case which was the opposite. Why this was is not understood, but it does emphasize how opinions and treatment decisions do vary on a case by case basis.

It was also interesting to note that in case #8 no trends were observed. Years of practice, use of endodontics, or the use of implants in practice had no influence on the treatment choice made by the surveyed practitioners. This may be in part due to the lateral

canal and small radiolucency on the mesial of the tooth presented in the case which may have been interpreted by some as a horizontal root fracture. Also the void between the composite and gutta percha may also have been subject to interpretation by many of the practitioners. These two irregularities associated with this tooth, if not interpreted correctly, could have led practitioners to make treatment decisions that they may not have not have chosen if interpreted correctly.

The purpose of the study was to determine if dental professionals today favor nonsurgical retreatment or implant placement. The case by case variation was expected, and question #6 served as a base line for gaining an overall consensus. Although the response to this question was 66% in favor of endodontic retreatment, there was great variation seen in the responses to the cases presented.

As was evident in this study, there may be variables that predispose practitioners toward one treatment, but it was also very evident that practitioners today evaluate each case on its own merits and determine the best possible treatment based on the existing information. Thus the Null hypothesis is accepted that dentists today are no more likely to place an implant than to perform endodontic retreatment.

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APPENDIX A

Figure 1 Survey Instrument

<p>1. Do you currently practice? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Years of practice? <input type="checkbox"/> 0-10 <input type="checkbox"/> 11-20 <input type="checkbox"/> 21-30 <input type="checkbox"/> >30</p> <p>3. Do you perform endodontic treatment in your practice? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>4. Do you perform endodontic re-treatment in your practice? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>5. Do you place or restore implants in your practice? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>6. Which treatment do you feel has the best long term prognosis? <input type="checkbox"/> Re-treatment <input type="checkbox"/> Implant</p>	
<p>For the following questions Retx= non-surgical retreatment</p>	
<p>7. Patient presents with a draining sinus tract and tenderness to percussion on #19. Patient says that the root canal was done a couple of years ago. In your opinion, what would you recommend to your patient?</p> <p style="text-align: right;"><input type="checkbox"/> Retx <input type="checkbox"/> Ext/Implant</p>	
<p>8. Patient presents with tenderness to palpation and percussion with #8. Patient states periodic swelling in the area and adjacent teeth are vital. The RCT was done about one year ago. In your opinion, what would you recommend to your patient?</p> <p style="text-align: right;"><input type="checkbox"/> Retx <input type="checkbox"/> Ext/Implant</p>	
<p>9. Patient presents to your office 7 months after having had root canal therapy #31. The radiolucency has increased in size and there is a sinus tract. The tooth is asymptomatic. In your opinion, what would you recommend to your patient?</p> <p style="text-align: right;"><input type="checkbox"/> Retx <input type="checkbox"/> Ext/Implant</p>	
<p>10. Patient presents to your office due to discomfort with #7. The tooth is tender to palpation and percussion. The tooth has 3mm probe depths and a draining sinus tract. The RCT was done 2 years ago. In your opinion what would you recommend to your patient?</p> <p style="text-align: right;"><input type="checkbox"/> Retx <input type="checkbox"/> Ext/Implant</p>	
<p>11. Patient presents with tenderness to percussion and palpation on #3. Periodontal status is within normal limits. The RCT was done 2 years ago according to the patient. In your opinion what would you recommend to your patient?</p> <p style="text-align: right;"><input type="checkbox"/> Retx <input type="checkbox"/> Ext/Implant</p>	
<p>12. Patient presents with a draining sinus tract adjacent to tooth #23. The tooth is tender to percussion and palpation and adjacent teeth test vital. Patient states that the RCT was done several years ago. In your opinion what would you recommend to your patient?</p> <p style="text-align: right;"><input type="checkbox"/> Retx <input type="checkbox"/> Ext/Implant</p>	

VITA

Gardiner M. Packer was born on July 12th 1975 in Salt Lake City, Utah. He is a citizen of the United States of America. He graduated from Brighton High School in Salt Lake City in 1993 and started attending the University of Utah that same year. He took two years off from education to serve a service mission in Japan for the LDS church. He returned in 1996, continued his education at the University of Utah, and received his B.A. in Medical Biology in 2001. He attended dental school at Creighton University in Omaha Nebraska, graduating Summa Cum Laude in 2004. He was also given the Endodontic Award by the faculty for the most skill in the field of endodontics, and was elected to the Omicron Kappa Upsilon honor society. Dr. Packer then returned to Salt Lake City and completed one year of private practice. Following that year, he completed a one year General Practice Residency at the University of Utah Medical Center. He then entered the endodontic residency program at Virginia Commonwealth University School of Dentistry in 2006.