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A Comparison of the Types of Public and Private Dental Benefit Payers for the Treatment of Children's and Adolescent's Permanent Teeth Requiring Root Canal Therapy and the Results

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Abstract

The FDI is working on a tool that will include patient-reported outcome measures (PROMs) in the overall evaluation of endodontic treatment outcomes. Various clinical and radiographic criteria have traditionally been used to determine the outcome of endodontic treatment. However, the impact of treatment on a patient's oral health-related quality of life (OHRQoL) is not addressed by these parameters. OHRQoL, a crucial PROM, can be used to understand treatment outcomes from a patient-centered perspective, enhancing communication between clinicians and patients and directing decision-making. The purpose of this narrowed-down review is to compare the OHRQoL of patients who had surgical endodontic treatment versus nonsurgical root canal treatment, with a particular focus on the minimal important difference (MID; the minimum changes in an outcome instrument's score that a patient needs to see a change that is clinically significant in their OHRQoL and/or oral condition) as well as the methods used to figure it out. According to the current evidence, patients who require root canal treatment have lower OHRQoL than those who do not. As a result, the literature suggests that either nonsurgical or surgical endodontic treatment improves OHRQoL. However, due to the wide range of study methods, neither MID recommendations nor high-confidence conclusions can be drawn. Therefore, clinical studies with appropriate follow-up times and baseline measurements are required. Even though there are many outcome studies in the literature, more research is needed on PROMs, especially in relation to the MID. The MID will make it easier to comprehend changes in outcome scores from the patients' perspective, allowing for better clinical practice decision-making.

Keywords: Care availability; Use of teeth; Medicaid; dental coverage; Dentistry for children; Outcomes of endodontic treatment

Introduction

Oral health care is largely driven by dental insurance. In the United States, the percentage of children who have dental insurance has increased from about 70% to about 90%. The expansion of publicly funded insurance programs has been the primary driver of the rate of increase in pediatric dental coverage [1]. In the United States, an estimated 51% of children receive private dental coverage, while 39% receive public-payer dental coverage through programs like Medicaid or the Children's Health Insurance Program (CHIP). Beyond enrolling in dental insurance, public-payer coverage for children's oral health care has become comparable to private coverage as states have improved their dental benefits over time, and oral health care utilization among public-payer beneficiaries has increased.

There are still variations in the types of services provided and oral health status based on the type of dental benefit payer, despite these significant coverage increases and improvements in the use of dental services among children [2]. Race and family income level influence the prevalence and severity of caries in the United States. Caries can cause pain, infection, and even tooth loss if not treated. The goal of endodontic treatment, which can include root canal therapy, is to try to preserve the natural dentition and avoid painful, infection-related, and untimely tooth loss that can last a lifetime. Comparative dental procedure use or the mix of procedures performed by public-payer beneficiaries and private-payer enrollees, particularly for endodontic treatment, has only been studied by a small number of researchers. Public-payer beneficiaries were found to be more likely than private-insured beneficiaries to receive endodontic treatment in previous studies with both pediatric and adult populations. To our knowledge, no research has looked into how insurance type affects endodontic treatment outcomes. Despite the increased access to oral health care provided by expansions of publicly funded insurance programs, differences in treatment outcomes may be worth investigating in light of existing disparities in oral health status.

The provision, treatment outcomes, and cost of initial root canal therapy were examined in this study in relation to dental benefit payer type [3].

Methods and Materials

Sources of data

We gathered our information from the Massachusetts state agency Center for Health Information and Analysis. Dental claims and information on member eligibility, provider, and insurance type are collected from health insurance payers licensed to operate in the Commonwealth of Massachusetts and included in this Massachusetts All-Payer Claims Database. Release Version 7.0 included records for children between the ages of 6 and 18; 539,966 people, or 36 percent, were enrolled in private insurance plans and 64 percent were beneficiaries of Medicaid [4]. The Center for Health Information and Analysis has approved the data use agreement for this study.

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Variables

For each patient, the analytic data set contained the following information: unique identification number, dates of enrollment and disenrollment, dental insurance payer type information (the maximum amount contractually allowed and that an insurer will pay for the procedure or the amount paid by the insurer).

Children and adolescents aged 6 to 18 who had received root canal therapy on a permanent tooth were included in our study. The first root canal treatment that was observed on a patient in the cohort for a specific tooth is referred to as an "initial." The American Dental Association's codes: The endodontic treatment procedures that were up for analysis were identified using Current Dental Terminology15 (CDT). Additionally, an adverse event after initial root canal therapy was identified using CDT codes. Nonsurgical endodontic retreatment, surgical endodontic retreatment or apicoectomy, or tooth extraction were all considered adverse events, which indicated that the initial root canal therapy was unsuccessful. The type of provider—individual providers or facilities—was identified using provider specialty codes. Individual suppliers included general (nonspecialist) dental specialists and expert dental specialists [5]. Endodontists, who are experts in the treatment of root canals, pediatric dentists, prosthodontists, periodontists, orthodontists, and oral surgeons were examples of dental specialists. For the purposes of the analyses, individual providers were divided into endodontists and other providers. Clinics, centers, and hospitals were the categories of facilities that included provider specialty codes.

Data analysis

The final data set included all patients who received initial root canal therapy during the study period and had complete payer-type data. At the tooth level, the results of the initial root canal treatment were measured. Patients were excluded from tooth-level analysis if they did not enroll in insurance within one year of receiving treatment or if their treatment records did not include the appropriate tooth number. 2 tests and t-tests were used to compare the characteristics of those included in the sample and those excluded due to missing tooth numbers to ensure external validity.

After making adjustments for age, sex, tooth type (anterior, premolar, and molar), and provider type, the association between payer type and initial root canal therapy at the individual level was measured using multiple logistic regression.

Initial root canal treatments were considered successful for the evaluation of procedural outcomes at the tooth level unless there was an adverse event (tooth extraction, endodontic retreatment, or apicoectomy) or they were censored due to an identified lapse in the patient's insurance enrollment. Estimates of procedural survival by payer type were made using the Kaplan-Meier method [6]. A model that was adjusted for the following covariates was used to evaluate the risk of adverse events that occurred following initial root canal therapy based on payer type (public or private). Cox proportional hazard regression was used. age, gender, kind of tooth, and kind of provider. This model also included member identification to account for person-level clustering and produce estimates with robust SEs. In addition, the adjusted Cox proportional hazard model was used to control for age, sex, tooth type, and payer type to assess procedural survival according to provider type in a subset of the sample restricted to procedures performed by a single provider.

Results

The types of dental care providers who performed each patient's initial root canal therapy are documented for each patient. Endodontic treatment was more likely to be performed in a facility for children with public-payer insurance than for private insurance (P .001). 12,507 of the initial root canal treatments were performed by individual dental care providers, which included non-specialist dentists (51.2 percent), endodontists (46.2 percent), pediatric dentists (1%), and other dental specialists (1%). Endodontists were more likely to treat children with private insurance for root canal therapy.

The sample consisted of 1,497 private-payer beneficiaries who had received 1,654 initial root canal treatments, and 13,523 public-payer beneficiaries who had received 18,434 initial root canal treatments. Sexe, provider type, and tooth type did not show statistically significant differences between those included in the sample and those excluded due to number of missing teeth (P.0001) [7]. For private insured beneficiaries, the median follow-up period was 33 months, while for public-payer beneficiaries, it was 34 months. According to the adjusted Cox proportional hazards model, public-payer beneficiaries were more likely to experience a negative event. In the unadjusted model of the provider-type analysis, patients who received treatment from endodontists had better outcomes than those who received treatment from other dentists. However, this association did not hold statistical significance after adjusting for covariates.

A log-rank test revealed statistically significant differences between public and privately insured patients when we compared procedural survival rates by payer type. On cases censored based on eligibility, a sensitivity analysis of the Kaplan-Meier survival estimates and adjusted HRs revealed no statistically or clinically significant differences in treatment outcomes. At one year of follow-up, all 20,088 initial root canal treatments were evaluated; Public beneficiaries had survival rates of 98.0%, while private insured beneficiaries had survival rates of 99.2%. 9,433 procedures could be evaluated three years later; Children covered by private insurance had survival rates of 97.4% and 94.0%, respectively.

Discussion

Disparities in dental visit utilization between children and adolescents with public and private dental insurance have been reduced as a result of federal efforts to expand public dental insurance coverage [8]. However, the mix of dental procedures performed on children and adolescents varies widely; Beneficiaries who receive public assistance are more likely to receive a greater proportion of therapeutic dental services, such as endodontic treatment. Our findings concur with those of researchers who claim that children with private dental coverage receive more endodontic treatment, such as root canal therapy, than those with public-payer coverage.

Our findings indicate potential disparities in treatment outcomes, as beneficiaries of public dental insurance were more likely to experience procedural failures after root canal therapy than those with private-payer insurance.

There were some limitations to our investigation. First, there were a lot of tooth number-related missing data in the private-payer cohort. The tooth number was required for the tooth-level analysis of treatment outcome, but not for the personal analysis of treatment provision. Seventy-one percent of the otherwise eligible cohort of private-payer procedures were lost after cases with missing tooth numbers were eliminated. For analysis of treatment outcomes based on payer type, this

disparate loss of cases may increase the likelihood of selection bias and limit its generalizability to all Massachusetts children and adolescents [9]. For the tooth-level analysis, we considered solutions to the missing tooth number problem, such as assuming that any subsequent adverse event procedure (such as extraction, endodontic retreatment, or apicoectomy) following the initial root canal therapy was a sign of procedural failure. However, tooth extraction was the most common adverse event observed, and the CDT15 code that identifies this procedure does not include tooth type (anterior, premolar, or molar), as is the case with endodontic treatments. As a result, we were unable to use this less conservative analytical approach in the end. There was an excessive risk that a subsequent, unrelated tooth extraction might be incorrectly associated with the initial root canal therapy without the tooth number. One more element possibly restricting the generalizability of our discoveries is that we have included information from just 1 state, Massachusetts. However, our findings for public-payer Medicaid and CHIP beneficiaries were comparable to those of a New York-based cohort of pediatric Medicaid recipients. A cohort of privately insured children has not yet been the subject of a comparable study, according to our knowledge. Second, as with all studies utilizing dental claims data, the nonclinical nature of the administrative data and the absence of diagnostic codes in dentistry prevented the initial diagnosis for the treated teeth from being established [10]. Because the endodontic diagnosis is known to be associated with the outcomes of endodontic treatment, this is especially relevant to our research. Despite these limitations, the findings of our study shed light on the availability of dental care providers and treatment settings, as well as the prevalence of endodontic treatment, for children covered by public or private dental insurance in the Commonwealth of Massachusetts.

Conclusion

In the state of Massachusetts, there are statistically significant differences in the provision of endodontic treatment and its outcomes between children and adolescents covered by private insurance and those covered by public insurance. Those enrolled in private-payer dental insurance plans had better treatment outcomes, but public-payer beneficiaries were more likely to undergo root canal therapy. This realized disparity may be attributed to differences in treatment settings, provider types, and payment amounts between public and private insurance.

Acknowledgement

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Conflict of Interest

None

References

1. Yu SM, Bellamy HA, Kogan MD, Dunbar JL, Schwalberg RH, et al. (2002) Factors that influence receipt of recommended preventive pediatric health and dental care Pediatrics 110; e73.
2. Yu ZJ, Elyasi M, Amin M (2017) Associations among dental insurance, dental visits, and unmet needs of US children J Am Dent Assoc 148: 92-99.
3. Newacheck PW, Kim SE (2005) A national profile of health care utilization and expenditures for children with special health care needs. Arch Pediatr Adolesc Med 159: 10-7.
4. Eklund SA, Pittman JL, Clark SJ (2003) Michigan Medicaid's Healthy Kids Dental Program: an assessment of the first 12 months. J Am Dent Assoc 134: 1509-1515.
5. Hom JM, Lee JY, Silverman J, Casamassimo PS (2013) State Medicaid early and periodic screening, diagnosis, and treatment guidelines. J Am Dent Assoc 144: 297-305.
6. Shariff JA, Edelstein BL (2016) Medicaid meets its equal access requirement for dental care, but oral health disparities remain Health Aff (Millwood) 35: 2259-2267.
7. Nasseh K, Fosse C, Vujicic M (2022) Comparative analysis of dental procedure mix in public and private dental benefits programs. J Am Dent Assoc 153: 59-66.
8. Dye BA, Mitnik GL, Iafolla TJ, Vargas CM (2017) Trends in dental caries in children and adolescents according to poverty status in the United States from 1999 through 2004 and from 2011 through 2014. J Am Dent Assoc 148: 550-565e7.
9. Sweet M, Damiano P, Rivera E, Kuthy R, Heller K, et al. (2995) A comparison of dental services received by Medicaid and privately insured adult populations J Am Dent Assoc 136: 93-100.
10. Burns LE, Terlizzi K, Roman SC, Wu Y, Sigurdsson A, et al. (2022) Epidemiological evaluation of the outcomes of initial root canal therapy in permanent teeth of a publicly insured pediatric population Int J Paediatr Dent 32: 745-755.