# Out-of-pocket costs for the dental treatment of children with cleft lip and palate

*Alexis Lundin, DMD[1], Erin Shope, DMD[1]; Erinn E. Enany, DMD[1], Changyong Feng, PhD[2]*
*[1]Eastman Institute for Oral Health, University of Rochester Medical Center, Rochester, NY, USA*
*[2]University of Rochester Medical Center, Dept. of Biostatistics and Computational Biology, Rochester, NY, USA*

## Introduction

Cleft lip and palate (CLP) is the most common craniofacial anomaly. Children born with this anomaly have several complex problems that requires a team of specialists for comprehensive care. Treatments include multiple costly surgical, dental, and orthodontic interventions. They may also require presurgical infant orthopedics provided by a dental specialist.

Often the dental and orthodontic treatment critical to caring for individuals with CLP is not covered by insurance. In 2022, the **US Senate failed to pass the Ensuring Lasting Smiles Act** which would have required insurance to cover dental treatment for children with craniofacial differences. Few studies have explored dental out-of-pocket costs that children with CLP encounter. Data collected in this study could help obtain successful legislation to require insurance coverage for children with craniofacial differences.

The aim of this retrospective cohort study is to compare the out-of-pocket costs of dental procedures for CLP patients with Medicaid insurance to those with private insurance.

## Methods

**Study design:** 320 charts of patients with cleft lip and or palate were identified and 235 charts met the criteria for the study.

**Inclusion criteria**

1. Patients with CLP
2. Patients treated at EIOH between 2007 and 2022

**Exclusion criteria**

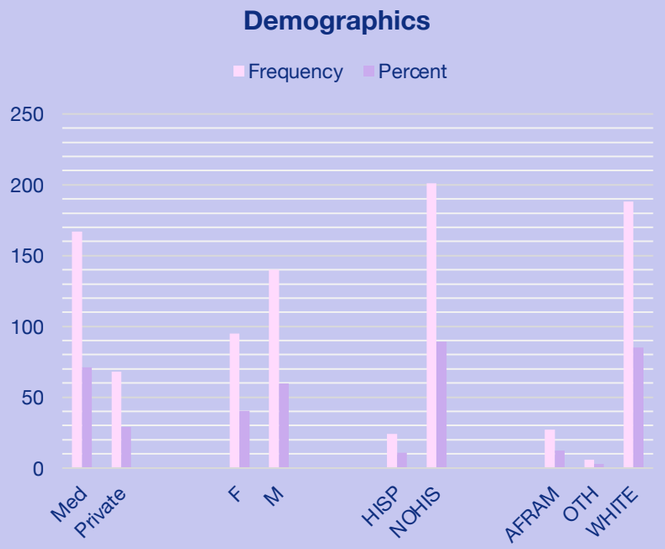
1. Patients without CLP
2. Patients with CLP treated at EIOH outside of 2007 to 2022
3. Patients with both private and Medicaid

**Data Analysis:** The Shapiro-Wilk test was used to test the normality of the distribution of cost in two groups. For normally distributed data, two-sample t-test was used to compare the mean values of two groups. Otherwise, the Wilcoxon rank-sum test was used to compare the distributions of two groups. The linear regression analysis was used to study the correlation between the cost and insurance type, adjusting for the effects of age, gender, race, ethnicity, and number and type of visit.

## Results

Linear regression analysis was used to study the association between the total out-of-pocket payment (OOP) and insurance type, adjusting the effects of number of appointments, age, gender, race, and ethnicity.

| Insurance | Mean | Maximum |
|---|---|---|
| Medicaid | $149.16 | $5975 |
| Private | $1621.57 | $12,260.50 |




| Parameter | Estimate | Standard error | t Value | P-value |
|---|---|---|---|---|
| Intercept | -346.22 | 177.94 | -1.95 | 0.053 |
| Insurance type (Private) | 1028.22 | 194.69 | 5.28 | <.0001 |
| Insurance type Medicaid (reference) | 0 | . | . | . |
| Appointments | 27.88 | 4.65 | 6.00 | <.0001 |
| Age | 18.18 | 20.91 | 0.87 | 0.386 |
| GENDER Male | 151.80 | 168.51 | 0.90 | 0.369 |
| GENDER Female (reference) | 0 | . | . | . |
| ETHN HISP | -136.14 | 278.63 | -0.49 | 0.626 |
| ETHN NOHIS (reference) | 0 | . | . | . |
| RACE AFRAM | -220.18 | 259.58 | -0.85 | 0.397 |
| RACE WHITE (reference) | 0 | . | . | . |

## Conclusion

Patients with private insurance have significantly higher out-of-pocket cost.

Patients with more appointments have significantly higher out-of-pocket cost.

The average out-of-pocket cost for patients with Medicaid insurance was **$149.16** and the maximum was **$5975.**

The average out-of-pocket cost for patients with Private insurance was **$1621.57** and the maximum was **$12,260.50.**

Insurance coverage is imperative to help families handle the financial burden of treatment for cleft lip and palate. The hope is that studies like this will help obtain legislation to require insurance coverage for all children with craniofacial differences.

## References

**1.** Abbott MM, Kokorowski PJ, Meara JG. Timeliness of surgical care in children with special health care needs: delayed palate repair for publicly insured and minority children with cleft palate. J Pediatr Surg. 2011 Jul;46(7):1319-24. doi: 10.1016/j.jpedsurg.2010.10.002. PMID: 21763828.

**2.** Broder HL, Wilson-Genderson M, Sischo L. Health disparities among children with cleft. Am J Public Health. 2012 May;102(5):828-30. doi: 10.2105/AJPH.2012.300654. Epub 2012 Mar 15. PMID: 22420792; PMCID: PMC3325366.

**3.** Rochlin, D. H., Ma, L. W., Sheckter, C. C., & Lorenz, H. P. (2022). Out-of-Pocket Costs and Provider Payments in Cleft Lip and Palate Repair. Annals of Plastic Surgery, 88(4), S343–S347. https://doi.org/10.1097/SAP.0000000000003081

**4.** Wehby, G., & Cassell, C. (2010). The impact of orofacial clefts on quality of life and healthcare use and costs. Oral Diseases, 16(1), 3–10. https://doi.org/10.1111/j.1601-0825.2009.01588.x

**5.** Worley ML, Patel KG, Kilpatrick LA. Cleft Lip and Palate. Clin Perinatol. 2018 Dec;45(4):661-678. doi: 10.1016/j.clp.2018.07.006. Epub 2018 Sep 18. PMID: 30396411.