

Abstract

Objectives: CHIP (Child Health Investment Partnership) of Roanoke Valley is a home visiting program that promotes children's health and family self-sufficiency. CHIP's Begin with a Grin program provides home-based dental anticipatory guidance and fluoride varnish for children 0-6 years of age. The purpose of this study was to examine the dental utilization of CHIP children with and without tooth decay.

Methods: This study included children (N=205) enrolled in CHIP between Sept 2008 and March 2010. Tooth decay was the main effect variable using a calibrated visual exam measuring the presence of frank (d_2) and non-cavitated decay (d_1), as well as filled and missing teeth. The outcomes were dental utilization in Medicaid as measured by preventive and restorative treatment. Logistic regression models were run using SAS 9.3 to obtain the odds ratio contrasting CHIP children with decay vs. those without decay.

Results: Of the 205 CHIP enrolled children, 49% had dental decay. A child enrolled in CHIP with tooth decay had a 3.88 times greater likelihood (95% CI 1.2-12.8) of having a *preventive* claim, and a 3.96 times greater likelihood (95% CI 2.0-8.0) of having a *restorative* claim than a CHIP enrolled child with no dental decay adjusting for the child's age.

Conclusions: There was a significant increase in dental utilization for children in the CHIP program with tooth decay compared to those without decay. A home visiting model can introduce children and their families to the establishment of a dental home and appropriate utilization of dental services in Medicaid.

Background

- Dental caries is the most prevalent chronic disease of childhood.
- Significant disparities in oral health exist according to race, ethnicity, education, income and geography.
- Children from low-income families experience more dental disease and have reduced access to dental care resulting in fewer opportunities for prevention and higher levels of unmet dental treatment needs.

•CHIP is a home-visiting program that provides social services and health care coordination for at-risk children and their families.

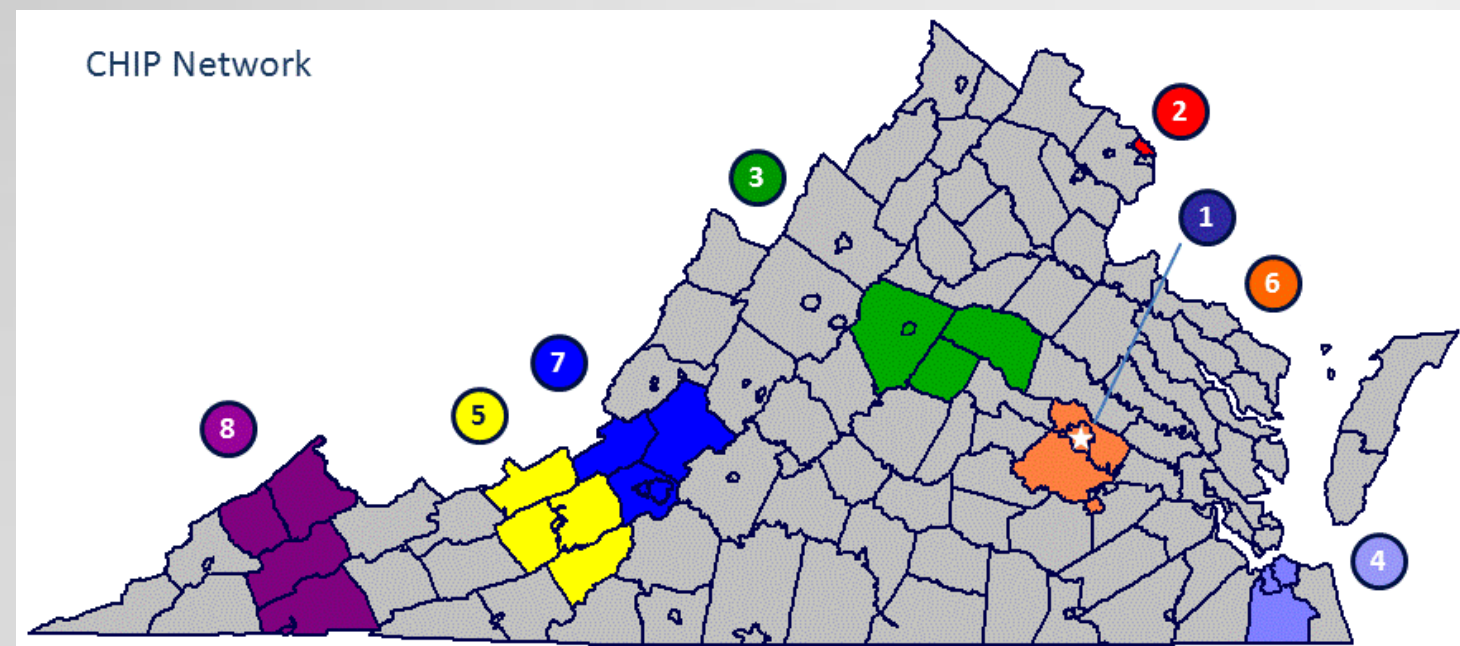
•CHIP promotes the health of children in the Roanoke Valley of Virginia from birth to kindergarten from low-income families.

•In addition to oral health anticipatory guidance, community health nurses and CHIP's pediatric nurse practitioners are applying semi-annual fluoride dental varnish to the teeth of CHIP-enrolled children between the ages of 6 months and 36 months.

•Varnish treatments are an efficient preventative oral health service that may decrease the chance of decay for the at-risk children enrolled in CHIP.

Objective

The purpose of this study was to examine the dental utilization of CHIP children with and without tooth decay



Methods

- This study included children (n=205) enrolled in the Child Health Investment Partnership of Roanoke Valley (CHIP).
- Tooth decay was the main effect variable using a calibrated visual exam measuring the presence of frank (d_2) and non-cavitated decay (d_1), as well as filled and missing teeth.
- The predictor variable: decay (yes=1, no=0), was used to predict the likelihood dental claim type received by the child
- The outcome was type of dental claim in Medicaid as measured by preventive (ref), restorative, and complex treatment.
- Stepwise Logistic regression was used to obtain the odds ratio contrasting CHIP children with decay vs. those without decay.
- Relevant covariates like the child's age, and race and were used in the generalized linear model.

•All analyses was completed SAS 9.3 statistical analysis software.

| | Description | Frequency | Percentage |
|------|-------------|-----------|------------|
| Race | White | 70 | 34% |
| | Black | 60 | 29.4% |
| | Hispanic | 57 | 27.8% |
| | Other | 18 | 8.8% |
| | Mean | | Std. err |
| Age | (months) | 27.1 | 1.09 |

Results

- Demographics of the cohort a mixed of racial categories and mean age of 27.1 months.
- Descriptive cohort statistics of proportion of decay vs. no decay partitioned by type of dental services provided. Only n=26 children did not receive an additional preventive service at a dentist.
- Adjusting for the age and race of the child, a CHIP patient with tooth decay is almost four times more likely (OR=3.94, 95% CI 2.43-6.37) to have preventive dental services compared to restorative and complex services.



Logistic Regression Analysis of Maximum Likelihood Estimates for the Effect of Decay on Type of Dental Claim

| Referent categories | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq | Exp(Est) |
|---------------------|-------------|----------|----------------|-----------------|------------|----------|
| No Decay | | | | | | |
| Preventive Claim | | | | | | |
| White | | | | | | |
| Intercept | 1 | 0.4570 | 0.3214 | 2.0218 | 0.1551 | 1.579 |
| Decay | Yes | 1.3702 | 0.2455 | 31.1497 | <.0001 | 3.936 |
| Claim Type | Restorative | -3.4356 | 0.3168 | 117.6197 | <.0001 | 0.032 |
| | Complex | -3.4356 | 0.3168 | 117.6197 | <.0001 | 0.032 |
| | Other | -0.6307 | 0.4330 | 2.1212 | 0.1453 | 0.532 |
| Race | Hispanic | 0.6428 | 0.2754 | 5.4470 | 0.0196 | 1.902 |
| | Black | -0.1767 | 0.2738 | 0.4163 | 0.5188 | 0.838 |
| Age | | 0.0468 | 0.00804 | 33.8431 | <.0001 | 1.048 |

Conclusions

- The aim of this study was to examine the impact of a home-visiting program on subsequent use of Medicaid dental services by low-income children in the Roanoke Valley.
- Child Health Investment Partnership (CHIP) program of Roanoke Valley, VA through its home visiting program has achieved:
 - An increased use of Medicaid dental services by the high-risk pediatric population,
 - A significant association between existence of a tooth decay in a CHIP child and the increased use of preventive dental services, having adjusted for age, race, and type of dental service used.
 - A home visiting program model can introduce children and their families to dental disease prevention, improve dental health literacy, establish a dental home, and the periodic application of fluoride varnish.

Acknowledgements

This research was made possible through Graduate Research Assistantship, the CHIP of Roanoke Valley, and the VCU School of Dentistry. The planning and data collection phases of this study were supported by a HRSA Grant Number: H17MC08975.