



Implementation of Evidence-based Child Oral Health, Application of Fluoride Strategies during Pediatric Healthcare Visits: A Quality Improvement Project

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Problem Definition

The lack of oral hygiene behaviors and practices results in a higher percentage of tooth decay and gum disease in children ages one through five years.

Statement of Purpose

Promote positive oral hygiene behavioral changes in children ages one through five years at time of primary healthcare clinic visit.

Background

Synthesis of Literature

- ◆ Good oral health is good overall health
- ◆ Dental enamel is not regenerative
- ◆ Major indicator of quality of life
- ◆ Dental caries and gum disease progressive
- ◆ Fluoride is most important intervention
- ◆ Requires behavior change and education strategies
- ◆ Pediatric healthcare visits

Identified Healthcare Problem

Health outcomes are negatively influenced due to the gap in evidence and practice. The importance of oral health bears a direct correlation to overall health. Poor oral hygiene behaviors leads to dental caries and gum disease, progressing to tooth loss. Indirectly, dental caries and gum disease contribute to inflammatory illness, such as arthritis, pericarditis, stroke, and heart disease.

Projected Health Outcomes

Prevention of early childhood caries will result in improved overall health. Good oral health promotes speech, nutrition, and positive self image. Healthcare providers (HCPs) are in a unique and well-qualified position to fill the gap between evidence and practice.

Cost Benefit Analysis

- ◆ 40% lower cost of treating dental disease if a child has had their first preventive dental visit by age one year
- ◆ ED visits (temporary solutions) cost up to 10 times greater than conventional, preventive treatments

Health Promotion Model

Pender's middle-range theory: Promotion of well-being through greater self-efficacy.

Setting

PeaceHealth Medical Group, Pediatric division in Eugene and Springfield, Oregon.

Participants: 3 clinics, 22 providers, 25 nurse and medical assistants.

References

- Moyer, V. A. (2014). Prevention of dental caries in children from birth through age 5 years: US preventive services task force recommendation statement. *Pediatrics*, 133(6), 1102-1111. doi:10.1542/peds.2014-0483
- Clark, M. B., Slayton, R. L., and AAP, Section on Oral Health (2014). Fluoride use in caries in the primary care setting. *Pediatrics* 2014; 134; 626; doi:10.1542/peds.2014-1699

Conflicts of interest disclosure: No conflicts of interest

Methods

Intervention process during pediatric clinic visit

- ◆ Fluoride varnish application
- ◆ Provide education, demonstration, and coaching on the proper practice of oral hygiene techniques
- ◆ Proper technique of tooth brushing
- ◆ Correct amount of fluoride toothpaste on the toothbrush

Project Implementation Phases

Phase I

- ◆ Identified need for fluoride strategies in pediatric healthcare setting
- ◆ Stakeholder engagement
 - ◆ Limit fluoride varnish to well child check-up visits for 18, 24, and 36 month children
 - ◆ No active dialogue with parents regarding dental care basics: tooth brushing techniques or amount of fluoride to place on toothbrush, and fluoride benefits; brochures acceptable
- ◆ IRB approval from PeaceHealth Medical Group and Frontier Nursing University

Phase II

- ◆ Pretest questionnaire for back office staff via Survey Monkey
- ◆ Attend monthly pediatric clinic staff meeting, using PPT presentation
 - ◆ Pre-intervention in-service educational modules presented
 - ◆ Prototype of laminated educational sheets for exam rooms reviewed
 - ◆ Fluoride varnish kits and models for hands on training
 - ◆ Folders with the following supplied to each staff member:
 - ◆ Fluoride benefits, Fluorosis fact sheet, Proper tooth brushing techniques, Correct amount of toothpaste to use
 - ◆ Waivers for fluoride varnish out of pocket for non-reimbursement from patient insurance provider

Phase III

- ◆ Implementation of fluoride varnish application
- ◆ Work flow document drafted and shared with the back office staff
- ◆ 10 day timeframe

Phase IV

- ◆ PDSA cycle utilized to promote change to increase fluoride varnish application procedures
- ◆ Brochures in English and Spanish were given to parents during rooming process for target population, prior to provider face to face
 - ◆ Dental care basics
- ◆ 10 day timeframe

Phase V

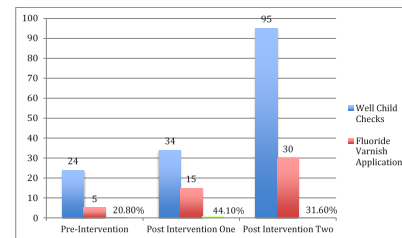
- ◆ Posttest questionnaire administered to back office staff via Survey Monkey
- ◆ Comparative analysis using SPSS began
 - ◆ Review of pre-intervention, post-intervention, and PDSA cycle to determine if fluoride varnish application was given during the 18, 24, and 36 month well child check-up visits
- ◆ Nominal: Chart review

Results

Children that received fluoride varnish application during their 18, 24, and 36 month well child check-up

- ◆ Pre-intervention: 20.8% [5/24]
- ◆ Post intervention one: 44.1% [15/34]
- ◆ Post intervention two: 31.6% [30/95]
- ◆ Informative brochures did NOT increase fluoride varnish application

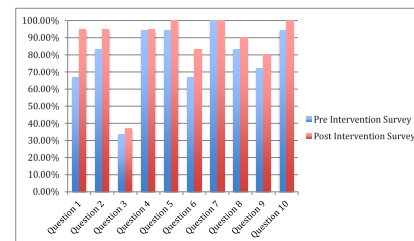
Table 1. Fluoride Varnish Application at 18, 24, 36 month Well Child Checks



PeaceHealth Medical Group back office staff pre and posttest results. The staff were given a 10-item survey questionnaire prior to project implementation and immediately after the conclusion of the post intervention one and two PDSA cycles. Both survey questionnaires were identical.

- ◆ Pre intervention: average score 82.2% [n=18/25]
- ◆ Post intervention: average score 88.5% [n=20/25]

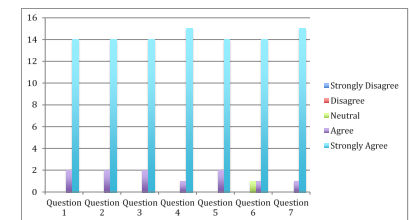
Table 2. Pre and Post Intervention Survey Questionnaires (n=25)



Results

Likert scale results. A five-point scale was administered to the back office staff at the completion of the educational module (n=16), prior to project implementation. The seven statements identified staff comfort with project workflow, satisfaction with fluoride training, and if their concerns were addressed.

Table 3. Five-Point Likert Scale: Post Educational Module (n=16)



Limitations

- ◆ Inclusion of age decreased from children ages one through five years during pediatric healthcare clinic visits to well child check-ups at 18,24, and 36 months
- ◆ Waivers for non-reimbursed procedure of fluoride varnish application is given routinely and may be a contributing factor for parents to decline procedure
- ◆ Project delays due to administrative scheduling, more than one supervisory staff, and multiple clinic sites created logistical challenges when identifying the go-live date for project start
- ◆ Electronic Medical Record

Conclusion

Overall, this fluoride QI project was successful...

- ◆ HCPs acknowledged that fluoride varnish application during pediatric healthcare visits was an asset to children in the community
- ◆ Provided opportunity to promote Child Oral Health
- ◆ Provision of a predetermined workflow proved helpful
- ◆ Back office staff played an integral role in the promotion of Child Oral Health
- ◆ Post intervention survey questionnaire demonstrated increase in fluoride knowledge



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