

Improving the Use of Fluoride Varnish Applications Among Children

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Purpose

Clinical Question:

Will adding a reminder (prompt) to the well-child visit template increase provider adherence of fluoride varnish application in children?

Goal:

Increase fluoride varnish applied to children by 15 percent as recommended by the American Dental Association (ADA)

Background

Dental Caries

Most common chronic disease in children

Affect 25% of 2 to 5 year olds and 50% of 12 to 15 year olds

An infectious disease that can be prevented by application of fluoride varnish

Global

140 million adults/children are without dental insurance

27% of the US population is made up of children less than 18

- 37% being minority
- Uninsured children are 2.5 times less likely to receive dental care compared to insured children
- for each child with medical insurance, 2.6 children are without dental insurance
- 4,458 areas in the US with a shortage of dental health professionals
- 45 million people need dental care

Florida

80% of dental caries in 20% of the population

- Untreated dental decay in 1 in 20 children between birth and 3 years and 1 in 5 children between 3 and 5 years
- Results in 52 million lost hours from school and 12.5 million days of restricted activity per year

Oral Healthcare:

- The American Academy of Pediatric Dentistry (AAPD) recommends oral health screening to begin within six months from eruption of the first tooth and oral health guidance to be provided at each subsequent visit (Mahat, Lyons, & Bowens, 2014).
- Pediatric providers may be the only source of oral healthcare for young children by providing oral healthcare during well-child visits.

Fluoride:

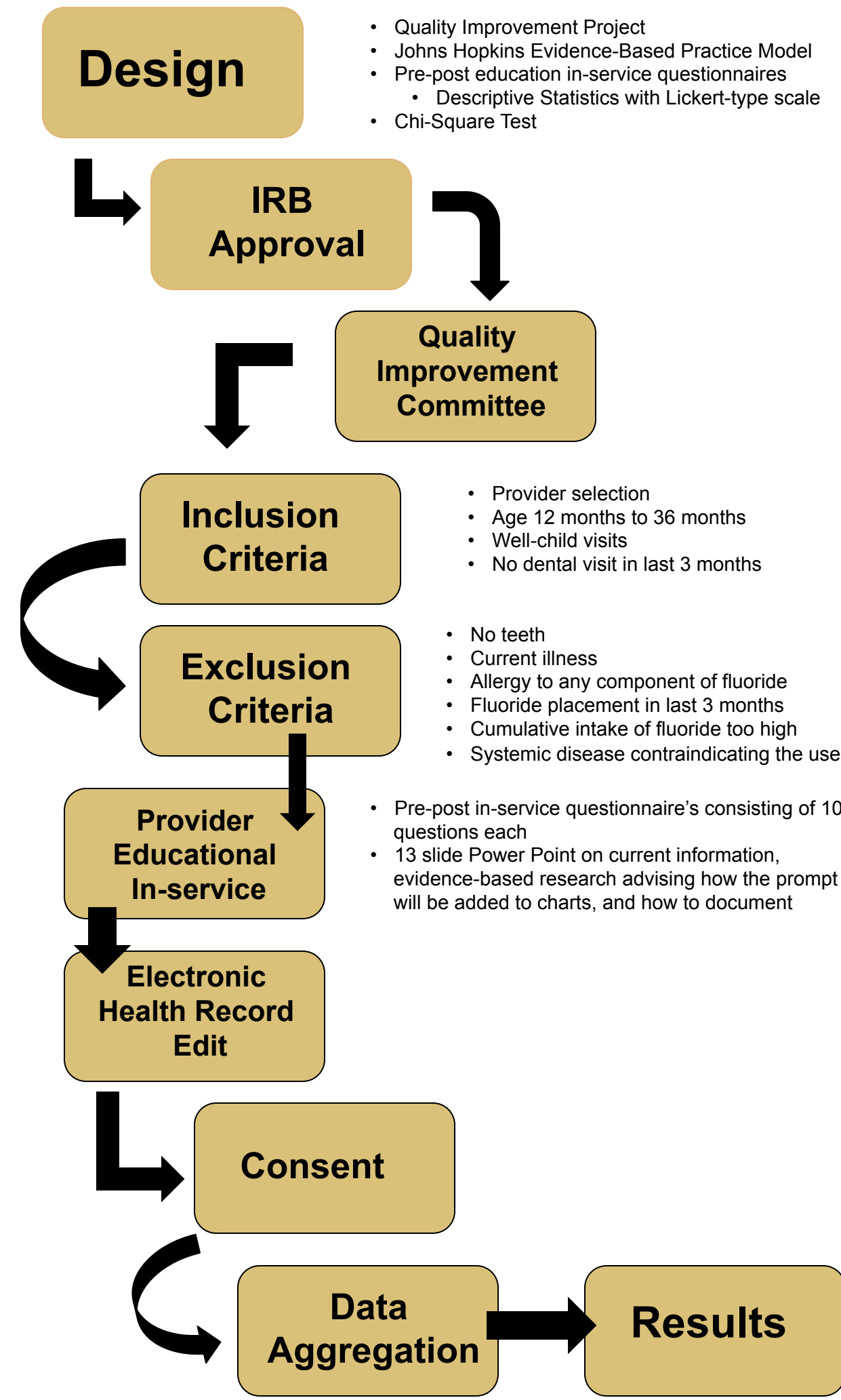
- Fluoride varnish, a high concentration of fluoride applied to the teeth, leaves a coating of fluoride material on the tooth enamel that is available for intake by saliva and plaque.
- Statistically reduced percentage of children with caries incidence when given fluoride (two to four treatments) versus no fluoride.
- Incidence decreased as number of fluoride applications increased
- Fluoride varnish added approximately two minutes to the visit for parent explanation and application (Lewis et al., 2005) and provides an opportunity to perform an oral exam.



Medicaid:

- Reimburse \$27 per fluoride application to children ages 6 to 36 months up to 4 applications per year

Methods



- Quality Improvement Project
- Johns Hopkins Evidence-Based Practice Model
- Pre-post education in-service questionnaires
 - Descriptive Statistics with Lickert-type scale
- Chi-Square Test

Quality Improvement Committee

- Provider selection
- Age 12 months to 36 months
- Well-child visits
- No dental visit in last 3 months

Inclusion Criteria

Exclusion Criteria

- No teeth
- Current illness
- Allergy to any component of fluoride
- Fluoride placement in last 3 months
- Cumulative intake of fluoride too high
- Systemic disease contraindicating the use

- Pre-post in-service questionnaire's consisting of 10 questions each
- 13 slide Power Point on current information, evidence-based research advising how the prompt will be added to charts, and how to document

Consent

Data Aggregation

Results

Prompt In EHR

ROS

PEDIATRIC Plan WC

Cholesterol Risk Assessment _____, Autism Risk Assessment _____, Fluoride Varnish _____

PEDIATRIC Development WC

Development 2 years/30 months _____

_____ Applied

_____ Not Applied

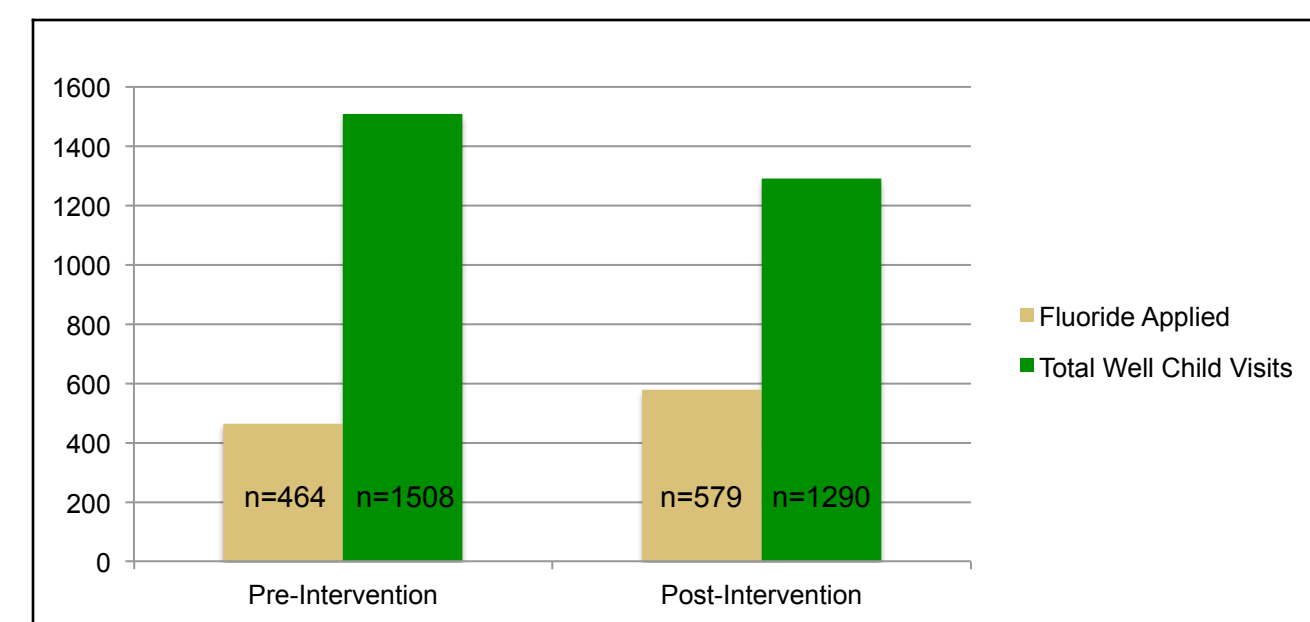
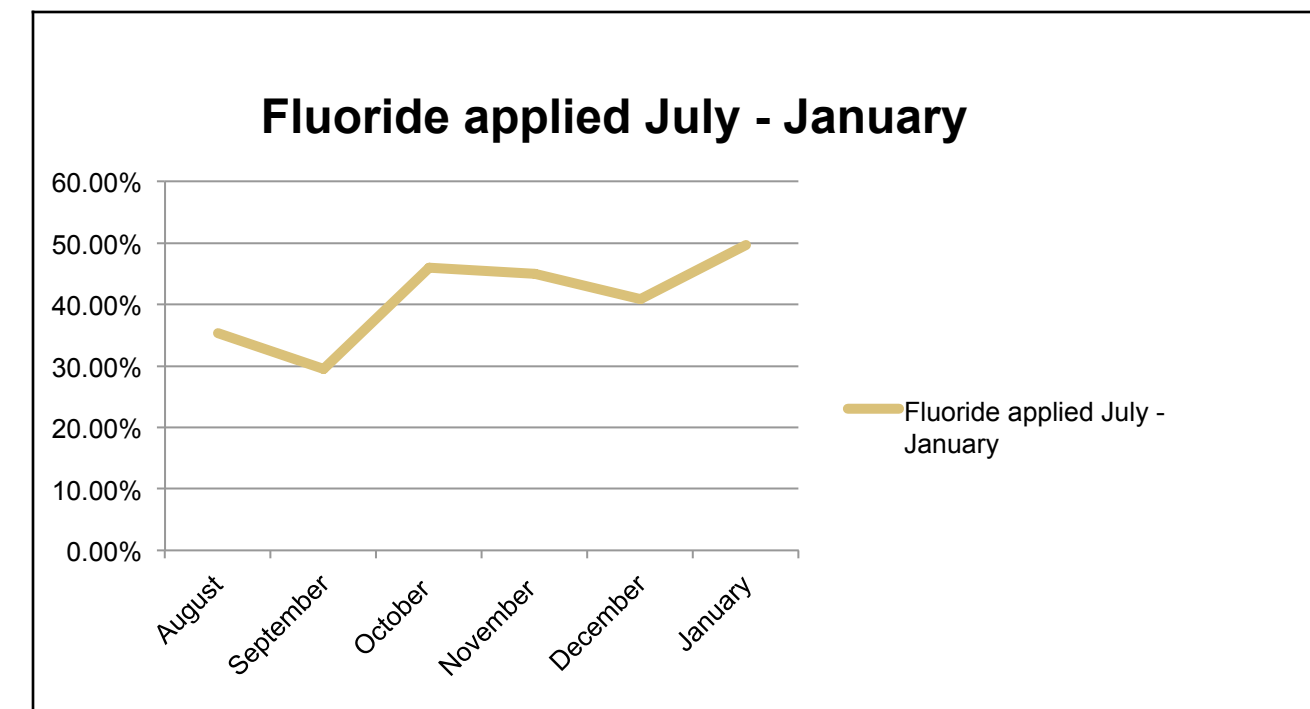
_____ Declined Due to Dental Visit

Results – Educational In-service

| Question* | Pre-test mean** | Post-test mean** | Difference |
|---|-----------------|------------------|------------|
| Decline in oral healthcare in last few decades | 3.63 | 4.13 | 0.50 |
| Well informed about dental caries in children | 3.38 | 4.88 | 1.50 |
| Well informed about fluoride application and prevention | 4.38 | 4.88 | 0.50 |
| Dental care is the responsibility of the dentist | 1.88 | 4.50 | 2.62 |
| AAP recommends fluoride from 6 to 42 months | 4.13 | 4.38 | 0.25 |
| Fluoride should be part of WCC | 3.25 | 4.63 | 1.38 |
| Risk of fluorosis | 1.88 | 4.63 | 2.75 |
| Fluoride can help with remineralization | 4.13 | 5.00 | 0.87 |
| Fluoride is easy to apply | 4.88 | 4.63 | -0.25 |
| Tend to forget to apply fluoride | 2.38 | 4.38 | 2.00 |

* n=8,
**Questionnaire answers: 5= strongly agree, 4= somewhat agree, 3=neutral/no opinion, 2=somewhat disagree, 1=strongly disagree

Results - Fluoride Application



- Pre-intervention:
3 months prior to prompt placement:
- 1508 well-child visits with 464 children (30.8%) receiving fluoride
 - No exclusion data given for not giving fluoride at visit
- Post-intervention
3 months after prompt placement:
- 1290 well-child visits with 579 children (44.8%) receiving fluoride placement
 - Exclusion data provided with prompt:
 - 1061 eligible for fluoride placement – 54.4 % receiving fluoride placement

Chi-Square Test

| Prompt | Received fluoride | Did not receive fluoride | Row Total |
|------------------------------|-------------------|--------------------------|-----------|
| Pre-Intervention | 464 | 1044 | 1508 |
| Post-Intervention | 579 | 711 | 1290 |
| Column Total | 1043 | 1755 | |
| Chi-Square Statistic: 59.239 | | | |
| P-value: 0.00 | | | |
| p<0.05 | | | |

Discussion

Strengths:

- Administrative support at Community Health Center, Inc.
- Provider buy-in
- Prompt placement in EHR

Limitations:

- Short period of time for study
- Provider questionnaire sample small
- Single practice; however, multiple sites
 - May not be generalizable to other practices

Implications for practice:

- 44.8% children received fluoride after adding prompt, an increase of 14%.**
- This project suggest 10% of all children that are not eligible to receive fluoride will be removed from reporting in the future and more accurately provide meaningful use data.
- Provider educational in-service improves care delivery
- Revenue for the practice by fluoride delivery was approximately \$5,211 per month.
 - Allows improved care for practice
 - Dental care for children

Acknowledgements

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References

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