

45th Biennial Convention (16-20 November 2019)

Fluoride Varnish Application by Nurse Practitioners During Global Missions: A Sustainable Means to Promote Health

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Title: Fluoride Varnish Application by Nurse Practitioners During Global Missions: A Sustainable Means to Promote Health

Purpose: Oral health disparities, including dental caries, have a major impact on both short and long-term health and quality of life. Globally, many individuals lack the knowledge and access to dental care, oral hygiene supplies, fluoridated water or fluoride supplements. Fluoride Varnish (FV) application has been used as a means to promote oral health in various underserved regions of the world. The DNP Family Nurse Practitioner (FNP) Faculty at The University at Buffalo have incorporated oral health content into the curriculum and clinical experience. It is vital to provide DNP FNP students education regarding risk factors for childhood caries, subsequent adult caries and the resulting implications for oral systemic health. During various mission trips, FNP students and faculty have provided education regarding oral health, applied FV, provided oral hygiene supplies, and training to hundreds in remote settings. To assure this intervention is sustainable students and faculty have trained volunteers who are living in the region on FV application and provided supplies for future application. This proved to be cost effective means to promoting safe, sustainable primary and secondary dental carie prevention.

Review of Literature:

Dental caries is an international public health challenge and Early Childhood Caries ECC is a serious public health problem in both developing and industrialized countries. The disease of ECC is defined as the presence of 1 or more decayed, missing, or filled tooth surfaces in any primary tooth in a child under the age of 6, and in children younger than 3 years of age, any sign of smooth surface caries is indicative of severe early childhood caries (S-ECCC) (Tinanoff, Kierce, Newman, & Ryley, 2017).

Bonetti & Clarkson, 2016 reported on six Cochrane systematic reviews involving 200 trials and more than 80,000 participants. The evidence from the systematic reviews confirms the effectiveness of fluoride varnish; applied professionally 2-4 times a year is beneficial for preventing caries in both primary and permanent teeth. Globally, the efficacy of FV is acknowledged in clinical practice guidelines.

Results:

The application of fluoride varnish is inexpensive and time efficient. Supplies cost approximately one dollar per treatment. The procedure takes approximately 10 minutes to complete. Nurse practitioner students can be trained in a group setting on fluoride varnish application, which can be accomplished in approximately 1 hour, making the intervention cost effective and sustainable. Educating students on the benefit of improving oral systemic health will improve the overall health of underserved populations. Prevention of dental caries with fluoride varnish alone is a major step to improve oral systemic health. The results of fluoride varnish application are tremendous

potentially saving \$1200-1300 lifetime cost per each carie. The number of individuals that can be treated on any single mission range from 100-500, pending the age of the population.

Conclusion: DNP FNP students provided training on oral health, correct oral hygiene and applied fluoride varnish to orphans and refugees in various settings. Training caretakers in various settings and providing supplies for future treatments promoted sustainability. Training of FNP students at the UB SON has been accomplished and effective. Two DNP FNP students were able to do their research on training of global health workers on the application of fluoride varnish for sustainability. This intervention can then be translated to their local clinical settings / local providers / school nurses.

Title:

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Keywords:

Fluoride varnish, Nurse Practitioner students and Oral systemic global health

References:

- Bonetti, D., & Clarkson, J. E. (2016). Fluoride Varnish for Caries Prevention: Efficacy and implementation. *Caries Research*, 50(suppl 1), 45-49. doi:10.1159/000444268
- Clark, C. A., Kent, K. A., & Jackson, R. D. (2016). Open mouth, open mind: Expanding the role of primary care nurse practitioners. *Journal of Pediatric Health Care*, 30(5), 480-488. doi:10.1016/j.pedhc.2015.11.007
- Douglas, G. V., Ramsdale, M. P., Vinall-Collier, K., & Csikar, J. I. (2016). Using high fluoride concentration products in public policy: A rapid review of current guidelines for high fluoride concentration products. *Caries Research*, 50(suppl 1), 50-60. doi:10.1159/000443409
- Marinho, V. C., Worthington, H. V., Walsh, T., & Clarkson, J. E. (2013). Fluoride varnish for preventing dental caries in children and adolescents. *Cochrane Database of Systematic Reviews*(7). doi:10.1002/14651858.CD002279.pub2
- Tellez, M., & Wolff, M. S. (2016). The public health reach of high fluoride vehicles: Examples of innovative approaches. *Caries Research*, 50(suppl 1), 61-67. doi:10.1159/000443186
- Tinanoff, N., Kierce, E.A., Newman, M.G., & Ryley, J. (2017). An interdisciplinary resource for the diagnosis and management of early childhood caries brought to you by Elsevier. *The Journal of Evidence-Based Dental Practice*. Retrieved from <http://earlychildhodcariesresourcecenter.elsevier.com>

Abstract Summary:

Oral health disparities plague individuals all around the world. Educating nurse practitioner students on oral systemic health and training them on the application of inexpensive and time efficient fluoride varnish is a major step to improve oral systemic health.

Content Outline:

Introduction

A. Fluoride varnish application by nurse practitioners during global health missions can be a time efficient, inexpensive sustainable means to promote health.

Body

A. Dental Caries are an international public health challenge and early childhood caries (ECC) are a serious public health problem. Global missions can be used to prevent ECC through student volunteers' application of fluoride varnish.

a. 2.3 billion worldwide suffer from dental caries. More than 90% of the US adult population has had a cavity.

B. Fluoride varnish application is within the scope of practice for nurse practitioners.

b. Fluoride varnish is inexpensive and time efficient

C. Training of DNP FNP students on oral systemic health should include prevention with application of fluoride varnish.

c. Sustainability can be accomplished by training local individual on global missions the importance of oral health and repeat application of fluoride varnish.

Conclusion

DNP FNP students were successful in providing training on oral health, correct oral hygiene and application of fluoride varnish to individuals on multiple global health missions.

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Author Summary: Family Nurse Practitioner currently teaching as a Clinical Assistant Professor in the Family nurse practitioner program at the University at Buffalo and working as a nurse practitioner in the leukemia service at Roswell Park Comprehensive Cancer Center. The Global Initiatives Coordinator for the School of Nursing organizing and attending global outreach missions in various areas of the country.