

Nurse-applied Silver Diamine Fluoride for Children- What do Nurses Think?

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BACKGROUND

There is scant research on medical health care provider-driven management of dental caries with silver diamine fluoride¹ (SDF). None have evaluated the potential of having medical nurses bridge the gap in interprofessional collaboration specific to SDF application for children.

AIMS

To investigate the attitudes, beliefs, and perceptions of nurses, identify possible barriers and make recommendations related to treatment with SDF by nurses at the well-child visit.

METHODS

Medical nurses working with children at either of 2 study sites (a primary care and a tertiary care unit) in Singapore were invited to participate.

A mixed methods approach was employed in two phases:

Phase One: 110 self-administered questionnaires were conducted to elicit attitudes and beliefs of nurses who worked with children regarding providing oral hygiene advice, examination, and certain dental interventions

Phase Two: 16 semi-structured interviews were conducted individually with a purposive sample of nurses who had participated in Phase One. Participants were first shown an SDF educational video² and then interviewed to gain a deeper understanding of their perspectives on SDF application by nurses.

RESULTS

Participants' scores for "I am confident to provide" were low for all five oral health services (score: <3 out of 5) except for oral hygiene advice (score: ≥3.9 out of 5). A similar trend was observed for "I believe a nurse should provide" and "I believe a nurse should provide (in situations where individuals have issues with access to care)". For oral examination, application of fluoride varnish and application of SDF, participants believed that it was significantly more important ($p < 0.05$) for nurses to provide these in situations where individuals have issues accessing care.

Results only differed between the two sites regarding the provision of oral hygiene advice- participants from the primary care unit were more confident and believed more strongly in providing oral health services than those from the tertiary care unit. (Table 1)

Table 1: Questionnaire results for the Primary care unit (n=93) and Tertiary care unit (n=17)

Oral Health Services (†Mean ± SD)	I am confident in providing...			I believe a nurse should provide...					
	Primary care unit	Tertiary care unit	Total	In cases where individuals have issues with access to care					
				Primary care unit	Tertiary care unit	Total	Primary care unit	Tertiary care unit	Total
Oral screening	2.9 ± 1.2	2.9 ± 1.1	2.9 ± 1.2 ^a	3.4 ± 1.0	3.1 ± 0.9	3.3 ± 1.0 ^b	3.5 ± 0.9	3.1 ± 0.9*	3.5 ± 0.9 ^b
*Oral examination	2.4 ± 1.1	2.8 ± 1.1	2.5 ± 1.1 ^a	2.9 ± 0.9	3.1 ± 0.8	3.0 ± 0.9 ^b	3.4 ± 0.9	3.1 ± 0.8	3.3 ± 0.9 ^c
Oral hygiene advice	3.9 ± 0.8*	3.4 ± 0.9*	3.9 ± 0.8 ^a	4.2 ± 0.7*	3.2 ± 1.1*	4.0 ± 0.8 ^a	4.1 ± 0.7*	3.4 ± 0.9*	4.0 ± 0.8 ^a
Application of fluoride varnish	2.2 ± 1.1	2.4 ± 1.1	2.2 ± 1.1 ^a	2.6 ± 0.7	2.8 ± 0.8	2.6 ± 0.7 ^b	2.9 ± 0.8	2.9 ± 0.7	2.9 ± 0.8 ^c
Application of silver diamine fluoride (SDF)	2.0 ± 1.0	2.4 ± 1.1	2.1 ± 1.0 ^a	2.6 ± 0.7	2.7 ± 0.8	2.6 ± 0.7 ^b	2.9 ± 0.8	2.9 ± 0.7	2.9 ± 0.8 ^c

†Strongly agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1

*Oral screening refers to a general visual assessment of the oral cavity whereas oral examination refers to more detailed investigations which involve making diagnoses that may lead to treatment

*The mean value is significantly different ($p < 0.05$) between the primary and tertiary care units using the Mann-Whitney U test

a, b, c: Values demarcated with the same superscript letters denote values of the total responses analyzed across columns that were not significantly different ($p < 0.05$) from each other when analyzed with the Kruskal-Wallis test

Table 2: Summary of interview findings

Role of nurses in paediatric oral health care	✓ Part of caring for child's overall well-being
Barriers	✗ Not part of nurse's scope of practice ⊗ Insufficient time/ knowledge and training/ manpower ⊗ Parent's concerns about non-dental staff delivering oral health care
Recommendations	⊕ Education and training ⊕ Competency assessment in SDF application ⊕ Separate service line for SDF application

Interviews reflected that most viewed oral health care as an important part of paediatric health but were limited by insufficient knowledge, time, and manpower. Most reported that with formal education and training, competency assessments and specific approaches to counter time limitations, they would be willing to expand their job scope to include SDF application. (Table 2)

CONCLUSION

Introducing SDF application by nurses at the well-child visit is likely premature in healthcare systems where nurses have minimal experience providing oral health services. Efforts should focus primarily on addressing the existing challenges of implementing basic preventive oral health programmes in the medical setting.

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