

FDI World Dental Development Fund

Application form

Please complete and submit by e-mail to REngland@fdiworlddental.org

Section A: About the applicant

ORGANIZATION

Name

City Luganville

Country Vanuatu

Legal Status National Dental Association
 Non Governmental Organization
 University
 Research Institution
 Other (please specify): Ministry of Health, Vanuatu

Please describe the purpose/goals of the organization and its current/most recent projects (max. 250 words):

Purpose: Promote and improve oral health in Vanuatu.

Goal: Introduce supervised tooth brushing accessible to all Kinder/Grade 1 Primary School children by 2024

Current/most recent projects:

2017 - Medical Sailing Ministries and Vanuatu Ministry of Health (MOH) organised National Oral Health Survey (NOHS)

2018 - "Gudfala Tut Skul Projek" (GFTSP) 20-week trial at Central School

November 2018 - NOHS 2017 Report¹ revealed:

- High prevalence of caries and toothache
- Detrimental impact of toothache
- High prevalence of gingival bleeding
- 40% 5-7 year-olds rarely or never brush their teeth
- High sucrose consumption - urban areas

November 2018 - MOH released National Oral Health Policy 2019-2023.

December 2018 – MOH established Integrated Oral Health, Eye Care and ENT Unit

March 2019 - Report on the findings of the GFTSP 2018² demonstrated significant reduction in mean plaque scores.

March 2019 - Three senior MOH dentists, including applicant, undertook a Study Tour to Melbourne, visiting several organisations, including The University of Melbourne and Dental Health Services of Victoria.

April 2019 – MSM received notification that NOHS report accepted by World Health Organisation.

August 2019 - GFTSP funded by Medical Sailing Ministries (private donations and volunteer services) to be extended to 800 Kinder/Grade 1 PS children attending five schools, four in Port Vila and one in Luganville; objective to refine the processes prior to further expansion of GFTSP in urban schools in 2020.

During the first half of 2019 extensive planning, including adaptation (with permission) of the *Childsmile Nursery and School Toothbrushing Programme*, University of Glasgow.

KEY CONTACT PERSON

Name

Position

Address

Telephone

E-mail

Section B: About the Project

PROJECT

Title: Gudfala Tut Skul Projek (GFTSP)

Location Port Vila, Efate, Republic of Vanuatu

Population to be served (please include information on age group and total number of people targeted to reach):

Initially the project from 2020 will cover as many Kinder and Grade 1 Primary School children as possible in the two major urban centres, Port Vila (Efate) and Luganville (Santo) over the next two years.

The majority of schools in urban areas have two Kinder and two Grade 1 classes with an average number of 40 children per class i.e. 160 children in the age group 4-6 year-olds per school.

The total number of children reached will depend mainly on funding, but the target over the next two years commencing February 2020 will be to cover twenty schools in Port Vila and twenty schools in Luganville i.e. approximately 6400 children.

Timeframe Two years, commencing February 2020

Background information (please provide relevant history of the area/problem and a review of any relevant literature)

It is a well-established fact that increased sugar consumption³ and poor oral hygiene⁴, especially when combined with low exposure to fluoride ion, are the major aetiological factors associated with dental decay. Low compliance with regular brushing is also a primary cause of periodontal (gum) disease.⁴

National data for dental caries prevalence and experience (dmfs) in the 5-7-year-old group, for example, were very high. Prevalence of dental caries in this age group was 69.9% and dental caries experience 7.10 ± 8.24 (Mean \pm SD).

As expected, however, mean dental caries experience was significantly higher in urban areas than in more isolated areas of the archipelago. The dmfs index in the Urban Division was 10.92 ± 8.48 compared to 4.34 ± 6.95 in the Rural 2 Division.¹

Furthermore, prevalence of gingival bleeding on probing in 5-7-year-olds was 77.5%, and the number of bleeding sites 7.42 ± 6.6 (Mean \pm SD). Almost 40% in this age group reported “rarely” or “never brushed” their teeth. A high percentage (10.4%) of these children also reported toothache in the last month and 18.7% required urgent intervention based on current pain and/or infection of dental origin recorded during the survey.¹

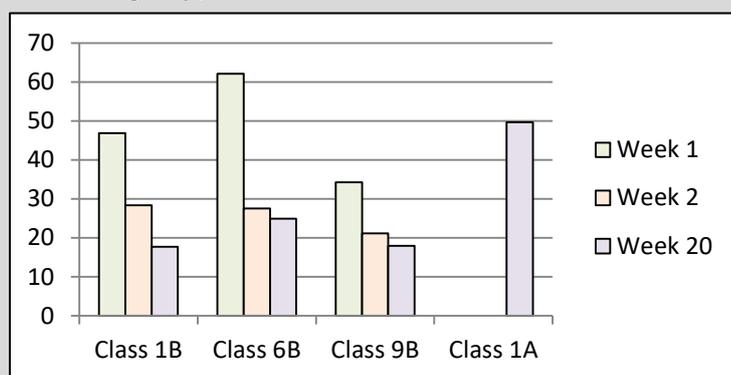
To instil life-long healthy habits it is essential to start early, ideally during the early formative childhood years. Children also tend to respond more positively to incentives and on this basis the concept of the Gudfala Tut Skul Projek was proposed.

Although the idea of supervised tooth brushing in schools is not new⁵⁻¹¹, one of the pitfalls of similar programs appears to have been lack of sustainability, mainly due to lack of supervision and a supply of good quality tooth brushes and fluoride toothpaste on a continuing basis.

Based on the assumption that an improvement in oral hygiene using fluoride toothpaste would lead to improvement in oral health and reduction in dental caries experience, the Gudfala Tut Skul Projek 2018 trial had five main objectives:

- To raise greater awareness of oral health in school children participating in a supervised tooth brushing program
- To determine if a supervised tooth brushing program would lead to improvement in oral hygiene habits in children attending a school in Port Vila, Vanuatu
- To ascertain if delivery of the program could be easily managed in a school setting in Vanuatu
- To develop and test acceptance of newly developed fluoride toothpaste suitable for production in Vanuatu based on cold-pressed coconut oil which is readily available in Vanuatu
- To determine if the children participating in the program might influence the oral hygiene habits of their respective family members (“Gudfala Tut Famli”)

All five objectives were achieved over the 20-week trial period and there was a sustained improvement in oral hygiene (judged by reduction in mean plaque scores) in the three intervention classes 1B, 6B and 9B. Furthermore, mean plaque score in class 1B (Intervention group) was significantly lower ($p < 0.001$) than Class 1A (Non-intervention group) at week 20.



Left: Bar graph representing mean plaque scores by class (including class 1A) by weeks 1, 2 and 20. Class 1A was not included in the trial but assessed at Week 20 as a control.

There was no significant difference in mean plaque score between class 1A at week 20 and that of class 1B at week 1. However, mean plaque score in class 1B (Intervention group) was significantly lower ($p < 0.001$) than Class 1A (Non-intervention group) at week 20.

The majority of the children (98.8%) readily adopted the new coconut oil-based toothpaste, judging it to be ‘Gud tumas’ or ‘Gud’.

There also appeared to be a reduction in toothache reported at the end of the 20-week trial period (17.9%) compared to a 20-week period (61.8%) prior to the trial.

Questionnaire responses revealed that the Gudfala Tut Skul led to improvement in oral habits of the participants’ families thereby promoting “Gudfala Tut Famli”.

The objective this year (2019) is to extend the project to five schools, four in Port Vila and one in Luganville to further develop and refine the processes for GFTS Projek before gradually extending to a) all kinder and primary schools in the two main urban centres, Port Vila and Luganville, and b) to all kinder and primary schools throughout

Vanuatu over the next 5 years.

During the current modest rollout phase, local leadership and supervision will be under two Ni-Vanuatu dentists, both of whom have postgraduate qualifications in Public Health Dentistry. xxxxx, who is the Head of the newly created Oral Health, Eye Care and ENT Unit under the Directorate of Public Health, will have overall responsibility for local leadership including the four Port Vila schools, as well as future plans for gradual expansion to all urban schools and ultimately throughout the archipelago.

Senior Dentist, Northern Provincial Hospital Dental Clinic, will be responsible for the first GFTS Projek to be undertaken in Luganville, and will also work with xxxxx in planning for the broader rollout of GFTS Projek, firstly in Port Vila and Luganville, and gradually nation-wide.

Dental Advisor/Volunteer Medical Sailing Ministries Inc., will play a supporting role and act as liaison person between MSM Inc. and Vanuatu Ministry of Health.

The implementation of the GFTSP has been expedited by adapting the University of Glasgow Childsmile Programme. Permission to adapt the manual, including the National Standards, has been granted by Director of Childsmile.

The Childsmile programme manual¹², developed at the University of Glasgow, Dental School, can be accessed online and a brief overview of the different components of the programme can be obtained from the WHO Collaborating Centre in Malmo webpage.¹³

References:

1. National Oral Health Survey, Vanuatu 2017 Report. November 2018. Access here <http://msm.org.au/>
2. Gudfala Tut Skul Projek 2018 Report. Access here <http://msm.org.au/>
3. Moynihan PJ, Kelly SAM. Effect on Caries of Restricting Sugars Intake: Systematic Review to Inform WHO Guidelines. 2014. *J Dent Res* 93(1):8-18
4. Axelsson P, Nyström B, Lindhe J. The long-term effect of a plaque control program on tooth mortality, caries and periodontal disease in adults. Results after 30 years of maintenance. *J Clin Periodontol*. 2004 Sep;31(9):749-57. Abstract
5. Macpherson LMD, Anopa Y, Conway DI, McMahon AD. National Supervised Toothbrushing Program and Dental Decay in Scotland. *J Dent Res*, 2013;92(2):109-113
6. Change for the Better Introducing Mandatory Brushing in Public Schools in Mexico City <http://oasisdiscussions.ca/2017/01/06/mb-3/> and <https://vimeo.com/195849721> Accessed May 2019
7. Damle SG, Patil A, Jain S, Damle D, Chopal N. Effectiveness of supervised toothbrushing and oral health education in improving oral hygiene status and practices of urban and rural school children: A comparative study. *J Int Soc Prev Community Dent*, 2014;4(3):175-181
8. Marinho VCC, Higgins J, Logan S, Sheiham (deceased) A Marinho VCC, Higgins J, Logan S, Sheiham A. Fluoride toothpastes for preventing dental caries in children and adolescents. *Cochrane Database of Systematic Reviews* 2003, Issue 1. Art. No.: CD002278. DOI: 10.1002/14651858.CD002278. <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD002278/epdf/abstract> Accessed May 2019
9. Walsh T et al., (2010). Fluoride toothpastes of different concentrations for preventing dental caries in children and adolescents. *Cochrane Database Syst Rev*, (1):CD007868.
10. Twetman S et al., (2003). Caries-preventive effect of fluoride toothpaste: a systematic review. *Acta Odontol Scand*, 61(6):347–355.
11. Marinho, VCC, Worthington HV, Walsh T, Clarkson JE., (2013). Fluoride varnishes for preventing dental caries in children and adolescents. *Cochrane Database of Systematic Reviews*, 2013, Issue 7. Art. No.: CD002279. DOI: 10.1002/14651858.CD002279.pub2. <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002279.pub2/abstract> Accessed May 2019
12. <http://www.child-smile.org.uk/professionals/childsmile-manual.aspx> Accessed May 2019
13. World Health Organization Collaborating Centre in Malmo – a Childsmile case study. <https://whoeducationguidelines.org/content/childsmile-%E2%80%93-national-child-oral-health-improvement-programme-scotland> Accessed May 2019

Project Goal

The main goal of this project 2020-21 is to implement supervised tooth brushing in at least ten schools in each of the two main urban centres, Port Vila and Luganville as trials continue on adapting the processes to Vanuatu prior to expansion into all urban and rural schools.

Specific Objectives (please provide a narrative describing the Project Scope and Methodology employed to achieve the objectives)

To improve the oral health in children in Vanuatu beginning with kindergartens and Grade 1 primary school children in the two main urban centres, Port Vila and Luganville by:

1. Adapting a well-established model (Childsmile, NHS Scotland) to the Vanuatu setting and offering:
 - Supervised tooth brushing with fluoride toothpaste in kindergartens and primary schools
 - Free dental packs for children to brush at home
 - Twice yearly applications of fluoride varnish
2. Introducing toothpaste manufacture in Vanuatu utilising local labour and resources on a not-for-profit basis as a sustainable source of fluoride toothpaste for the supervised tooth brushing program. (Note: The viscosity of the paste has been carefully formulated to enable dispensing a pea-sized quantity of paste without touching the tooth brushes thereby reducing the risk of cross-contamination).
3. Developing the concept of “Brush in a Box” which consists of all the resources necessary to introduce and run the “Gudfala Tut Skul” project in schools, especially in isolated islands. “Brush in a Box” is to be developed in consultation with the Vanuatu Department of Education.

Timeline for Implementation of Project (please list significant milestones for the project and provide an estimated timeline for reaching those milestones)

2019

- | | |
|-------------------|--|
| February – June | <ul style="list-style-type: none">- Adaptation of Childsmile Programme for Vanuatu- Expansion of current toothpaste mixing facilities, including purchase of a good quality home food mixer with 5L bowl capacity to cope with the increased volume of toothpaste |
| August | <ul style="list-style-type: none">- Introduction of supervised tooth brushing in Port Vila at in four kindergarten/primary schools- Introduction of supervised tooth brushing in Luganville to one kindergarten/school |
| August – November | <ul style="list-style-type: none">- Maintenance phase, including reinforcement of key messages and maintaining toothpaste supplies.<ul style="list-style-type: none">• Single application of fluoride varnish• Preparation of additional tooth brush storage containers and materials for expansion of the project commencing February 2020 |

2020

- | | |
|------------------|--|
| February - March | <ul style="list-style-type: none">- Continue supervised tooth brushing program in the same five kindergarten/schools in Port Vila and Luganville and expand the program to include at least 10 other kindergarten/schools in Port Vila and Luganville making a total of 11 and 15 schools respectively.
(Note that this will cover more than 50% of kindergarten/schools in Luganville)<ul style="list-style-type: none">• First application of fluoride varnish at target schools |
| April - December | <ul style="list-style-type: none">- Maintenance phase and second applications of fluoride varnish in Term 3 |

Sustainability of Project:

- Local production of toothpaste based on 35% cold-pressed virgin coconut oil (readily available in Vanuatu) and calcium carbonate
- Supported by Dentalife Australia Pty Ltd, which has agreed to supply the other pre-mixed toothpaste ingredients, including fluoride (1350ppm), at cost price on a continuing basis
- Using re-usable 500ml low density polyethylene (LDPE) sauce bottles as dispensers to reduce cost and waste.
- Commercial sales of toothpaste in re-usable 125ml LDPE bottles under the Gudfala Tut paste brand on a 'not-for-profit' basis will contribute to financial sustainability of the project.
- Working with the Department of Education to introduce a new policy on mandatory supervised tooth brushing in schools to complement the Ministry's 'Sweet Drink Policy'
- Preparation of courses in oral health education and prevention for non-dental health professionals, both trainees (Nursing Colleges) and experienced health care workers, who work in established health clinics throughout the archipelago.
- Trainees at Nursing College undergoing above courses will participate in the Port Vila GFTS Projek to gain practical experience under the professional dental team
- Competency-based training in the application of fluoride varnish will be introduced into the oral health training module.
- Exploiting current opportunities arising from the NOHS 2017 survey results and increasing awareness of the link between poor oral health and systemic disease to lobby for inclusion of GFTS Projek into the Ministry of Health Business Plan
- A policy and national standards on GFTS Projek have been prepared and submitted to the Ministry of Health
- Classroom materials including tooth brush storage containers, class tooth brushing records, home brushing record booklets for children and full instructions have been prepared
- Training for teachers is included at implementation and regular review is undertaken to maintain supplies, compliance with brushing and prevention of cross-contamination
- Interview questionnaire for continuous quality improvement

Sustainability of environment:

- GFTS Projek also has the sustainability of the environment in mind and therefore will be moving as soon as possible to using tooth brushes with handles made of bamboo to reduce environmental contamination with disposed plastic products in keeping with the Vanuatu Government environmental policy. Cheap sources of tooth brushes with bamboo handles are rapidly emerging and GFTS is in contact with several suppliers
- The toothpaste ingredients are all classed as 'natural' and have no known detrimental impact on the environment
- The LDPE toothpaste dispensers are re-usable are hygienically washed and dried prior to refilling and re-using in the classrooms

Section C: Project Core Team

CORE TEAM MEMBER #1

Name

Position

Address

Telephone

E-mail

Responsibilities

CORE TEAM MEMBER #2

Name
Position
Address
Telephone
E-mail
Responsibilities

CORE TEAM MEMBER #3

Name
Position
Address
Telephone
E-mail
Responsibilities Liaison with MOH through a Memorandum of Understanding with the Vanuatu Ministry of Health

Section D: Budget and Resources

Other sources of funding

Detailed project budget – attach Budget Plan (attachment 4) detailing anticipated costs/expenditures.

Section E: Declaration of Intent

I confirm on behalf of Organization mentioned below that I am authorized to sign this declaration, and that to the best of my knowledge all answers to the questions on this form are accurate.

If the application is successful, this organisation will use the grant only for the purposes specified and will comply with the General Terms and Conditions (attachment 2).

I have also understood that it is required to submit a project progress report every 6 months of the project using the standard template provided by FDI.

Title Dr Name

Organization

Position

Date 10 June 2019 Signature