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## INTRODUCTION

Fluoride varnish application (FVA) is applied to prevent dental caries among toddlers. Toddlers in KP Raub are considered as moderate-to-high caries risk group due to lack of water fluoridation which ceased in Pahang in July 2012

## 1. SELECTION OF OPPORTUNITIES FOR IMPROVEMENT

### 1.1 PROBLEM IDENTIFICATION

No	Problem	2017	2018	2019	STD
1	High percentage of incomplete FVA among toddlers in KPR	0%	0%	12%	30% DSA

Source : Pencapaian Prestasi Sapuan FV KP Raub 2017-2019

### 1.2 RATIONALE FOR SELECTION

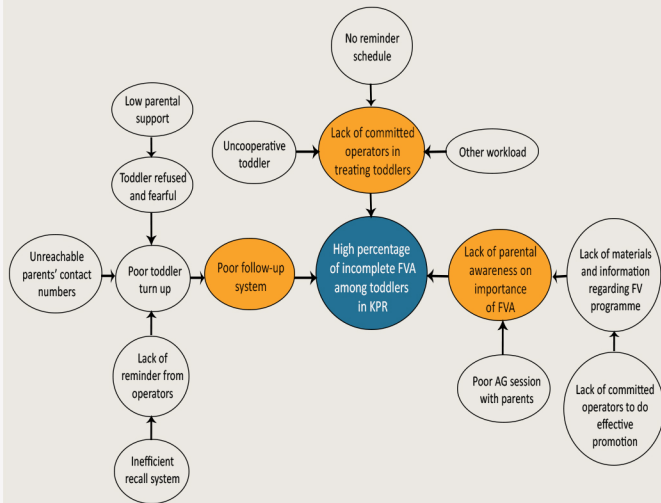
- SERIOUSNESS**  
High percentage of incomplete FVA among toddlers can affect their quality of life due to untreated dental caries. Based on reten PG 201, there was 87% of untreated carious deciduous teeth among preschool children in 2019
- MEASURABILITY**  
Data can be measured from Reten Fluoride Varnish 3
- APROPRIATENESS**  
Problem existed since 2017 until 2019
- REMEDIAL**  
Improvement measures can be implemented
- TIMELINES**  
Study can be done within 1.5 years

### 1.3 PROBLEM STATEMENT

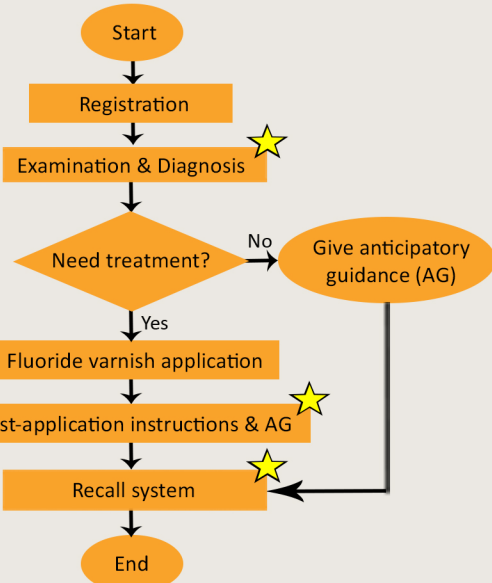
Moderate-to-high caries risk children younger than 6 years old should receive FVA at 3-6 months interval. However, the percentage of toddlers with complete FVA in KPR was low. A lack of committed operators in treating toddlers, a poor follow-up system, and a lack of parental awareness about the importance of FVA were factors that contributed to this problem. Thus, it is crucial for toddlers to receive complete FVA to prevent dental caries and improve their quality of life.

## 2. KEY MEASURES FOR IMPROVEMENT

### 2.1 PROBLEM ANALYSIS CHART



### 2.2 PROCESS OF CARE



### 2.3 GENERAL OBJECTIVE

To increase the percentage of complete FVA among toddlers in KPR

### 2.4 SPECIFIC OBJECTIVES

- To determine the percentage of toddlers with complete FVA in KPR
- To identify the possible contributing factors leading to high percentage of incomplete FVA among toddlers
- To propose and conduct remedial measures to increase the percentage of complete FVA
- To evaluate the effectiveness of our remedial measures

### 2.5 STANDARD & INDICATOR

INDICATOR	Percentage of toddlers with complete FVA
FORMULA	$\frac{\text{Total number of toddlers with complete FVA}}{\text{Total number of toddlers that need FVA}} \times 100\%$
STANDARD	≥ 30% (Reference : District Specific Approach 2020)

## 3. PROCESS OF GATHERING INFORMATION

Type of Study	Cross-sectional study using a convenience sampling method
Tools	1) Self-administered questionnaire 2) Dental observation form 3) Dental treatment card review
Inclusion Criteria	1) Toddlers registered under KPR in 2020 2) Receiving subsequent FVA at 6-monthly
Exclusion Criteria	1) Toddlers with asthma, ulcerative gingivitis/stomatitis or other known allergies 2) Toddlers with special needs care 3) Failed to attend an FVA visit within study period

### Duration of Study

- Verification study (February - April 2020)  
N = 14 Dental operators, 60 parents, 30 toddlers
- Remedial Measures (May - December 2020)
- First cycle study (January - February 2021)  
N = 8 Dental operators, 60 parents, 30 toddlers
- Remedial Measures (March - December 2021)
- Second cycle study (January - February 2022)  
N = 8 Dental operators, 60 parents, 30 toddlers

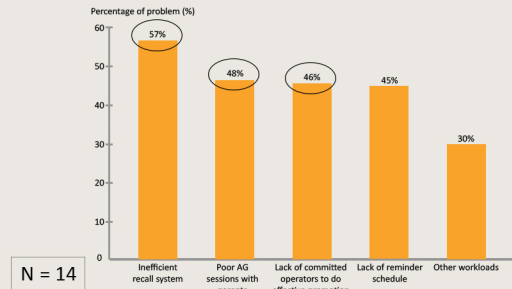
## 4. ANALYSIS & INTERPRETATION

### Problem Verification

Percentage of toddlers that received complete FVA in 2019 was only 12%

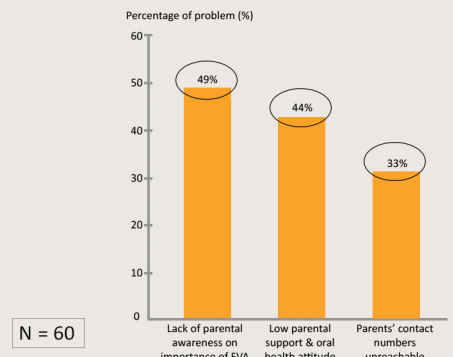
### Questionnaire 1 (Dental Operators)

Operators had an inefficient recall system, poor AG sessions with parents & lack of commitment to perform effective promotion



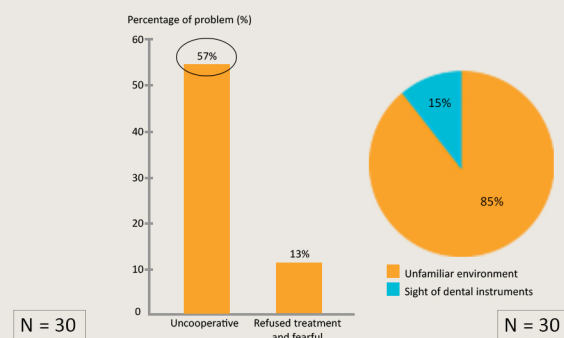
### Questionnaire 2 & Dental Treatment Cards (Parents)

- Parents were lack of awareness & knowledge regarding toddler's oral health and the importance of FVA
- Lack of parental support & oral health attitude
- Almost a quarter of them were unreachable via phone



### Dental Observation Forms (Toddlers)

Toddler's behaviour during treatment and reasons for uncooperativeness :



### Results from Analysis

- 3 major contributing factors :
- Poor follow-up system
  - Lack of committed operators in treating toddlers
  - Lack of parental awareness about the importance of FVA

## 5. STRATEGIES FOR CHANGE

### 5.1 DENTAL OPERATORS : Strengthen Recall System

**Cycle 1**

Tailored toddler's follow-up book

Reminder via appointment cards and operator's personal Whatsapp number

**Cycle 2**

Reminder via Whatsapp Business & custom FVA stickers

### 5.2 DENTAL OPERATORS : Improved AG session

**Cycle 1**

- Use of AG checklist
- Allocating afternoon slots for FVA visit
- Continuous Dental Education (CDE) for operators

**Cycle 2**

- Use of dental puppet
- Reinforced CDE for operators

### 5.3 DENTAL OPERATORS : Active promotion

**Cycle 1**

- FVA promotion via Facebook page
- Formation of a dedicated team of operators
- Flyers distribution to parents

**Cycle 2**

- Sharing of educational videos and custom e-flyers via Whatsapp Business & QR code

### 5.4 PARENTS : Increased awareness & support

**Cycle 1**

- Chairside education with dental aids
- Parental education session

**Cycle 2**

- Implementation of Hari Anakku

### 5.5 PARENTS : Recorded 2 phone numbers to contact 5.6 TODDLERS : Better cooperation during treatment

**Cycle 1**

- Reinforced tell-show-do technique
- Rewarded with dental kit

**Cycle 2**

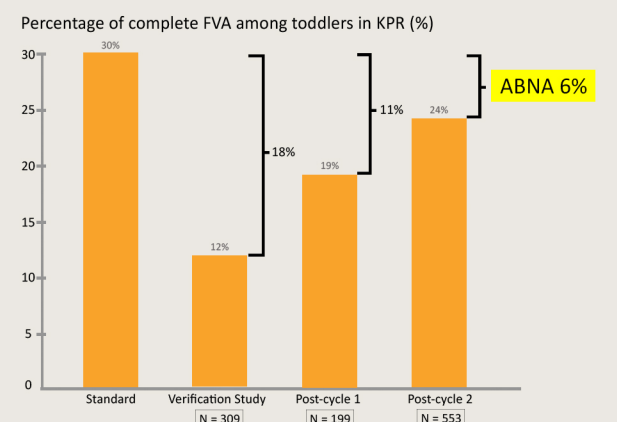
- Reinforced knee-to-knee examination
- Rewarded with cartoon balloon
- CDE for operators

## 6. EFFECT OF CHANGE

### Improvement in implementation of critical steps

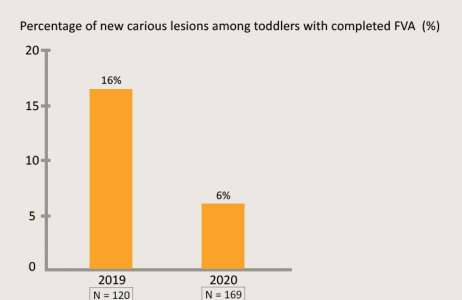
Critical Steps	Criteria	STD	Verification	Cycle 1	Cycle 2
Examination & Diagnosis	Carried out with good behavioural management techniques for toddlers	100%	57%	90%	93%
Post-application instructions & AG	- Using AG checklist and emphasize FVA's importance	100%	50%	78%	88%
	- Chairside education with parents	100%	35%	75%	88%
	- Post-treatment rewards to toddlers	100%	58%	80%	95%
Recall system	- Provide verbal and written reminders for next FVA	100%	70%	80%	90%
	- Record in toddler's book	100%	49%	78%	100%
	- Provide reminder a few days prior next FVA visit via phone	100%	51%	68%	95%
All entire process	Toddlers with complete FVA	30%	12%	19%	24%

### ABNA & Achievement



### Impact of Study

A decrease in the percentage of new carious lesions among toddlers with completed FVA :



### Lessons Learnt

- The introduction of Whatsapp Business application were able to reduce operator's workload
- Two cycles of interventions were able to lead to significant improvements

## 7. THE NEXT STEP

We aim to continually improve FVA promotion, AG sessions, and recall system to reach the standard set at 30%

## REFERENCES

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