

CHAPTER VI

PRESENTATION

This chapter presents the keynotes used in the final thesis examination.

The presentation consists of three parts: (1) the essay, (2) the research proposal. (2) the data exercise

The presentation handout is presented on the following pages.

A Comparative Study on Cost-Effectiveness between Resin and Glass-ionomer Used as Pit and Fissure Sealant in Mobile Dental Service for School Children at Municipality School, Buriram Province, Thailand

By

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Background

High dental caries in Thailand

- 85.1% Children age 6 years have dental caries
- Increasing trends from 1984 - 1994 from 71.6 % to 85.1%

(MOPH, 1994)

High dental caries in Buriram

- Children age 5-6ys. have dental caries 90.4% (urban area), 87.3% (rural area)
 - Children age 12ys : 47.7% (urban area), 36.2% (rural area)
- The most common teeth suffering from dental caries is permanent first molar teeth

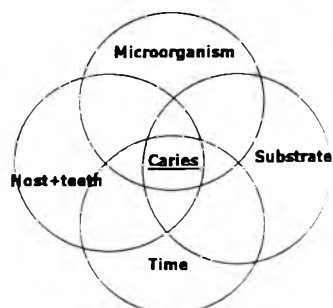
(BPHO, 1997)

What is dental caries

- A disease of the mineralized tissue of the tooth caused by the action of microorganism on fermentable carbohydrate
- Decalcification of the inorganic and organic substance of the tooth
- The lesion occurs in the subsurface and continues to enlarge and become a cavity

(Kidd and Jayakumar-Bochal, 1987; McDonald and Avery, 1994)

The Interplay of the Etiological Factors in Dental Caries



Type of caries prevention

1. Fluoride
2. Pit and fissure sealing
3. Diet
4. Plaque control

Fluorides

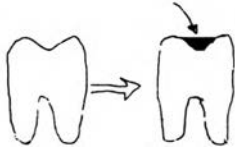
Systemic fluoride

- Water fluoridation (20-90 % caries reduction)
- Dietary fluoride supplement (<10% - >80%)

Topical fluoride

- Professional application (9.25 - 40%)
- Fluoride mouthrinse (20 - 50%)
- Fluoride dentifrices (25%)

Pit and fissure sealing



Effectiveness : > 70% after 2 years
(clinical setting)

Diet control

Sucrose has effects on plaque

- Colonization of bacteria
- Metabolize plaque into organic acid

Frequency is more harmful than quantity

Plaque control

Mechanical removal by individual at least 2 times a day

Mechanical removal by dental professional

Chemical plaque control for poor mechanical ability

Conclusion

Why pit and fissure sealant should be used

- Greater effect on occlusal caries reduction
- Water fluoridation is not available in Thailand now
- Thai people do not drink tap water

Alternative materials for pit and fissure sealant

Resin

- High compressive strength but sensitive to moisture
- Difficult to manipulate in a field setting
- Needs heavy equipments

Glass-ionomer

- Less retention rate than Resin (Raadal, 1996)
- Can release fluoride
- Less sensitive to moisture
- Needs less heavy equipments than resin

Proposal

A Comparative Study on Cost-Effectiveness between Resin and Glass-ionomer Used as Pit and Fissure Sealant in Mobile Dental Service for School Children at Municipality School, Buriram Province, Thailand

Rationale

1. High dental caries prevalence
2. Limited budget for preventive program

Research question

When deciding between using resin or glass-ionomer, as pit and fissure sealant in mobile dental service for school children, which material is preferable in terms of cost-effectiveness?

Hypothesis

The cost-effectiveness of glass-ionomer used as pit and fissure sealant in mobile dental service for school children is equal to that of resin

Objectives

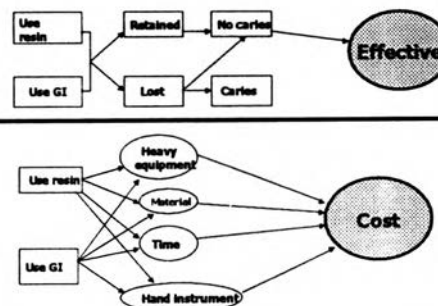
General objective : Inform decision-making

Specific Objectives :

- Define the effectiveness
- Define cost
- Define cost-effectiveness
- Provide a recommendations

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Conceptual framework



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Methodology

Study design : Quasi-experiment

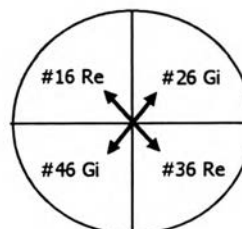
Study population : Children age 5-6 years in Municipality school I,II and III of Buriram province with a population of 630

Sample size : 296 children

Sampling technique: Purposive sampling
Inclusion criteria : Fully erupted permanent first molar both upper and lower jaws
Exclusion criteria : Children with caries in permanent first molar teeth even for 1 tooth

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Methodology (cont)



Oral cavity

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Data collection

Cost:

Equipment cost = $\frac{\text{Depreciation per year}}{\text{Number of sealed teeth per year}}$

Hand instrument cost = $\frac{\text{Depreciation per year}}{\text{Number of sealed teeth per year}}$

Material cost = $\frac{\text{Purchasing price per 1 pack}}{\text{Number of sealed teeth per 1 pack}}$

Time cost = $\frac{\text{Time cost per year}}{\text{Number of sealed teeth per year}}$

Effectiveness:

Caries prevention rate at 2 years after sealing

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Data analysis

Data will be analyzed to determine Frequencies, Percentages, Means and Standard deviation

Incremental cost-effectiveness ratio will be used to test the hypothesis

Compare the cost-effectiveness ratio

Action plan

Fiscal year 2003-2005

Budgets

180,000 Baht

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Expected outcome

The cost effectiveness based on research findings recommendations will be made to facilitate decision making

Ethical consideration

- Free treatment for children with dental caries on screening
- Inform consent
- On completion of the research; children with dental caries will be treated free of charge

Limitation

- Withdrawal
- Chewing style

Data exercise

Cost Analysis of Resin and Glass-ionomer Sealing Procedure in Mobile Dental Service for School Children and Rapid Assessment on School Dental Health Promotion and Preventive Program

Objective

General objective :

To gain experience in conducting
(a) A cost-analysis, (b) In-depth interview,
(c) FGD and (d) Observation technique

Specific objective :

- Define and compare unit cost
- Identify area for improvement of the dental health promotion and preventive program

Methodology

Study site and sampling :

Site : Municipality School I, Buriram

Children : 30 Children were selected by purposive Sampling with Inclusion and Exclusion criteria

Teachers : 4 teachers for in-depth interview were Selected by convenience sampling

Parents : 8 children's parents for FGD

Field observation : Behavior, Food, Facilities

Document search : Medical record, annual report

Results

Type of cost	Resin	GI
1. Time cost / 1tooth	26.29 B	25.69 B
2. Heavy equipment cost / 1 tooth	1.11 B	0.17 B
3. Hand instrument cost /1 tooth	2.30B	0.56 B
4. Sealing material cost	33.44 B	37.86 B
Total cost	63.14 B	64.28 B

Results (cont)

Dental care activities	Pre-school		Primary school	
	Plan	Existing	Plan	Existing
1. Tooth brushing	x	Yes	x	+/-
2. Fluoride tablet	x	Yes	-	-
3. Useful food	x	No	x	No
4. Oral cavity exam	x	Yes	x	Yes
5. Create good environment	x	+/-	x	+/-

Results (cont)

Dental care activities	Pre-school		Primary school	
	Plan	Existing	Plan	Existing
6. Dental health education	x	No	x	No
7. Dental sealant	x	Yes	x	Yes

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Discussion

Using straight line method to calculate depreciation

Did not concern about indirect cost

Local produced heavy equipments

Finding cannot be generalized to the whole population in the other parts of Buriram province

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Conclusion

Cost : There is no significant difference between resin and glass-ionomer

Area for improvement :

- Tooth brushing activity in primary school
- Useful food preparation
- Create good environment for dental health
- Dental health education

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Lesson learned

- Time counting
- Categorized oral status
- Development of guidelines
- Triangulation method
- Focus Group Discussion conducting
- In-depth interview technique

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