The most common oral disease is dental caries, especially among children. Early childhood caries (ECC) is a major health concern in many countries. Local research on oral health behaviours showed tooth brushing behaviours in only 12% of children under 1 year old, 25% of those 13-18 months old and 23% of those 19-24 months old. ECC can begin soon after the first eruption of teeth and progress rapidly, according to an oral health survey conducted in 2011, 50.7% of 5-year old children in Hong Kong have had tooth decay.

This thesis aimed to develop an evidence-based practice (EBP) guideline to promote oral health education (OHE) for parents or caregivers in order to decrease the chance of developing caries as well as improve the oral health hygiene of preschool children.

Six relevant studies were reviewed and appraised for a high level of evidence.
The implementation potential was also evaluated and the transferability, feasibility and cost-effectiveness of the proposed innovation were considered high. An evidence-based guideline and an implementation plan were then developed. Stakeholders were identified and a working committee was also formed to enhance the credibility and success of the implementation and evaluation process. A pilot test was carried out to identify potential problems and provide opportunities to further refine the guideline. The EBP guideline will present the OHE in four stages according to the child’s age. This can reinforce parents and caregivers in improving the oral health behaviour and hygiene of their children on a regular basis.

The main outcome of the guideline is changes in rate of tooth decay experience and secondary outcomes are oral health habits and the caregiver’s oral health knowledge attitude changes. The guideline will be considered effective when the primary outcome and one of the secondary outcomes can be achieved.
An Evidence-based Education Intervention

for Parents or Caregivers to Improve the Oral Health and Reduce Early Childhood Caries in Preschool Children

by

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Declaration

I declare that this thesis represents my own work, except where due acknowledgement is made, and that is has not been previously included in a thesis, dissertation, or report submitted to this University or to any other institution for a degree, or other qualifications.

Signed: __________________________
Chan Tak Wing Priscilla
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Chapter 1

Introduction

1.1 Background

The most common oral disease is dental caries, especially among children. Early childhood caries (ECC) is a major health concern in many countries. The World Health Organization (WHO) stated that 60-90% of school children and nearly 100% of adults have dental caries. According to the United States Public Health Service, ECC is 5 times more common than childhood asthma and 7 times more common than hay fever.

ECC is defined as the presence of one or more decayed teeth, missing teeth or filled tooth surfaces in any primary tooth in a preschool-child before 71 months of age (ADA, 2014). Risk factors for ECC are often related to oral hygiene practices, and dietary and feeding habits. Brushing teeth less frequently than daily is an important risk factor for ECC (Harris, Nicoll, Adair & Pine, 2004). Frequent feeding, snacking and drinking sugary drinks can prolong intra-oral acidity and increase the risk of developing caries.

Dental caries are a major cause of premature tooth loss, which affects the development of permanent teeth and often leads to pain. They can also affect one’s ability to chew or bite and hence affect eating. Study by Acs, Lodolini, Kaminsky
& Cisneros (1992) showed that children with caries were more likely to weigh up to 80% less than their ideal weight. A Hong Kong study showed that caries affect the perceived quality of life in both children and parents (Wong, McGrath, King, & Lo, 2011).

Besides the adverse effects on children's health, ECC carry a financial burden. In Hong Kong, the cost of filling a tooth depends on the severity and varied from around $300 or more. Moreover, young children may not be able to cooperate during the process and sometimes anaesthesia or sedation is required, this will increase the cost of treatment and causing anxiety for parents about the effects of sedation on children.

1.2 Significance

A recent study of oral health behaviours in Hong Kong showed tooth brushing behaviours in only 12% of children under one year old, 25% of those 13-18 months old and 23% of those 19-24 months old; 71% of children over 2 years old were still bottle-fed. (Chu et al., 2012). ECC can begin soon after the first eruption of teeth and develop on the tooth surface and progress rapidly. Young children with ECC have a higher chance of developing caries in their permanent dentition.
Studies have shown that oral hygiene behaviours such as tooth brushing and the use of fluoride toothpaste, dietary and feeding habits such as bottle use, and frequent snacking are significantly related to childhood caries (Harris et al., 2004). Chan, Tsai & King’s study (2002) showed that children who started brushing their teeth before the age of two were significantly more likely to be caries free than children who did not brush.

Generally, a child will visit Maternal and Child Health Centres (MCHCs) for a routine check-up about 7 times before the age of 2 years. MCHCs contribute a very valuable platform in providing important health care messages to the majority of parents in Hong Kong, a guideline should be developed for caregivers to promote early oral health care in children.

1.3 Affirming the Need

The MCHCs provide services for children 0 to 6 years old. There are 31 MCHCs in Hong Kong which provide free of charge child health service to all babies born in Hong Kong. The child health services mainly include vaccinations, anticipatory guidance on child development, childcare, and parenting, and health and developmental surveillance.

Usually within one week after birth, parents would register their baby at one of the MCHCs. Nurses in the MCHCs will monitor the growth and development of
the baby at each visit and caregivers are given booklets with age-related childcare information and a brief description of the normal development of a child. Further advice on childcare is given on request. During infancy, parents’ concerns are mainly focused on the growth of the baby. When babies reach 6 months old, the focus switches to feeding and nutrition. Parents seem to have few concerns about oral health care for babies and nurses rarely promote oral health care as parents are usually interested in other topics.

The Hong Kong government has implemented a few programmes on the prevention of caries such as, in 1961, water fluoridation was implemented in Hong Kong. An educational intervention targeting kindergarten students, “Brighter Smile for the New Generation” was introduced in 1993, and the school dental care service provides basic and preventive dental care for primary school children.

However, according to an oral health survey conducted in 2011, 50.7% of 5-year old children in Hong Kong have had tooth decay, of which 49.4% was left untreated. In 2001, 51% of 5-year old children had experienced tooth decay, which indicating no improvement in the past decade.

1.4 Potential Innovation

Nurses who work in the nursery, paediatrics units, and public and community health centres have a unique opportunity to positively influence a change in the
epidemic of ECC in children 5 years old or younger (Hallas, Fernandez, Lim & Carobene, 2011). In Hong Kong, the MCHCs provide routine anticipatory guidance for parents with information on child development, and childcare (e.g. umbilical care, feeding) and most children visit MCHCs for routine check-ups and immunizations. Therefore, MCHCs is considered to be an appropriate setting to provide oral health messages to parents and caregivers of preschool children. One local study found out that 80% of mothers could not recall receiving oral health messages during the antenatal or postnatal period (Chan, Tsai & King, 2002). Taking care of a baby can be difficult and tiring, and if all oral health messages were given at one time, parents or caregivers could become overwhelmed and actually remember only a limited amount of information. By including oral health messages in routine practice and breaking them down to correspond with the needs of a child at a particular stage of life, a foundation for good oral health habits and dental care could be provided.

1.5 Objectives

The objectives of this translational nursing research are:

- To determine an education intervention for parents or caregivers of children to promote oral health care and prevent early childhood caries
- To find an evidence-based educational intervention from the reviewed literature

- To develop a guideline to implement the educational protocol

**Research question:**

Does an evidence-based educational intervention for parents and caregivers promote oral health care and reduce early childhood caries in preschool children?

**Hypothesis**

An evidence-based education intervention for parents or caregivers can improve the oral health and reduce early childhood caries in preschool children.
Chapter 2

Critical Appraisal

2.1 Search and Appraisal Strategies

2.1.1 Identification of studies

Three electronic databases (Medline (Ovid), PubMed and Cochrane) were used in searching for studies. The keywords used for the search were based on three categories:

1) Participant variables: “infants”, “preschool children”
2) Interventions: “oral health education”, “dental education”
3) Outcomes: “early childhood caries”, “dental decay”

When the search showed over 300 results, further restrictions were applied: “randomized controlled trial”, “controlled trial” and “journal articles”. The history of the literature search is attached in Appendix 6 & 6A.

2.1.2 Inclusion and Exclusion Criteria

Inclusion criteria

(1) The intervention targeted parents or caregivers of the child

(2) Educational intervention

(3) Children under 6 years of age

(4) Controlled trial
Exclusion criteria

(1) Interventions involving treatment e.g. fluoride varnish, xylitol application

(2) Full article could not be retrieved

2.1.3 Data Extraction

From data in the 6 selected studies, information was extracted on:

1) Study design (RCT, quasi-experimental, controlled trial)

2) Subject characteristics

3) Intervention

4) Length of follow-up

5) Outcomes measures (e.g. ECC prevalence, oral health behaviour)

6) Effect size (e.g. incidence of childhood caries, reduction in oral health risk behaviour after intervention)

This information was compiled into tables of evidence and is attached as an appendix.

2.1.4 Appraisal strategies

The quality of the studies was assessed using the methodology checklist of the Scottish Intercollegiate Guidelines Network (SIGN) (2012). The checklist consists of two sections which were used to determine the internal validity and overall assessment. Based on the assessment, the evidence level of each study was graded.

2.2 Results
2.2.1 Search History

The study search was performed from 28 August 2014 to 6 September 2014 via three search engines, Medline (OVID), PubMed and Cochrane. A total of 106 potential articles were found after limiting the search to randomized controlled trials (RCTs). After reviewing the title, abstracts and availability of the full text, eight articles remained. Finally, four RCTs and two controlled trials were included in the study. Please refer to appendix 6 and 6A for summary of literature search.

2.2.2 Table of Evidence

Information extracted from the selected studies was summarized into tables of evidence and is attached as appendix 1.

2.2.3 Study Characteristics

Four out of the six studies were RCTs (Mohebbi, Virtanen, Vahid-Golpayegani & Vehkalahti, 2009; Plutzer & Spencer, 2008; Rong, Bian, Wang & Wang, 2003; Feldens, Giugliani, Drachler & Vitolo, 2010). The other studies were controlled trials (Kowash, Pinfield, Smith & Curzon, 2000) and a quasi-experimental comparison group design (Sgan-Cohen, Mansbach, Haver & Gofin, 2001). The aim of the studies was to examine the effectiveness of educational intervention in preventing early childhood caries. One of the studies was introduced in China (Rong et al., 2000). The other studies were performed in Australia (Plutzer
& Spencer, 2008), Iran (Mohebbi et al., 2009), Brazil (Feldens et al., 2010), England (Kowash et al., 2000) and Jerusalem, Israel (Sgan-Cohen et al., 2001).

Participants in these studies were parents or caregivers of children aged 0-3 years old. The sample sizes ranged from 228-731 participants. Children participating in three of the studies were recruited from health centres (Mohebbi et al., 2009; Plutzer & Spencer, 2008; Sgan-Cohen et al., 2001) while those in two studies were selected through a government registration system (Kowash et al., 2000; Feldens et al., 2010). In one study, subjects were recruited in kindergarten settings (Rong et al., 2003).

All 6 studies provided educational intervention in multiple sessions. The intervals between sessions ranged from monthly to annually.

The duration of the educational interventions ranged from 5 to 30 minutes (Mohebbi et al., 2009; Feldens et al., 2010; Sgan-Cohen et al., 2001; Kowash et al., 2000). Rong et al., 2000 and Plutzer & Spencer, 2008 did not report the duration of each session.

For the delivery approach, Rong et al, (2000) carried out the promotion during a parent-teacher meeting without mentioning the size of the group. Other studies delivered their educational intervention based on a one-to-one method through home visits (Feldens et al, 2010; Kowash et al., 2000), or during routine visits in
health centres (Mohebbi et al., 2009; Sgan-Cohen et al., 2001). In Plutzer & Spencer’s study (2008), participants received the educational intervention through the mail.

Although the interventions involved people from different disciplines, most interventions were delivered by health care professionals, which included healthcare staff working in health centres (Mohebbi et al., 2009), nurses (Sgan-Cohen et al., 2001), nutrition students (Feldens et al., 2010) and dental health educators (Kowash et al., 2000). In Rong et al.’s (2003) study, teachers who were trained by a dentist were also involved. However, Plutzer & Spencer (2008) did not mention who was responsible for the education delivery.

The control method was mainly withholding information on oral health care (Mohebbi et al., 2009; Plutzer & Spencer, 2008; Rong et al., 2003; Feldens et al., 2010; Kowash et al., 2000; Sgan-Cohen et al., 2001).

The Feldens et al. (2010) study had a follow-up period of 4 years, the longest of all studies. Kowash et al. (2000) had a 3 year follow up. Rong et al. (2000) and Plutzer & Spencer (2008) had follow-ups of 2 years and 1 year, respectively. In 2 studies, outcomes were evaluated 6 months after the interventions (Mohebbi et al., 2009; Sgan-Cohen, 2001).

The most common outcome in the studies was the prevalence of caries in
children (Mohebbi et al., 2009; Plutzer & Spencer, 2008; Rong et al., 2000; Feldens et al., 2010; Kowash et al., 2000). The remaining study investigated changes in oral health habits such as tooth brushing and the use of fluoride toothpaste (Sgan-Cohen et al., 2001).

2.2.4 Methodological Issues

The quality of the studies was assessed using the SIGN (2012) methodology checklist and is attached in the appendix 3.

All the selected studies defined an appropriately focused research question or hypothesis that was related to the proposed intervention. The target population and measured variables were also clearly stated. The aims of the studies were to investigate the effectiveness of oral health education (OHE) for parents or caregivers.

Concealment Methods

Mohebbi et al.’s study (2009) employed a cluster randomization method, which can lower the risk of contamination between subjects. The randomization and intervention process was monitored by a dentist who was not involved in the clinical examination and interview process. The dental examination took place in a separate room in the health centres, and the dentist who was responsible for the clinical examination was blinded to the allocation of groups. The staff members
involved were reminded not to disclose the intervention to the examining dentist.

In Plutzer & Spencer’s study (2008), the randomization of subjects was based on Zelen’s design, in which participants were allocated using a random number table. After randomization, the subject was told of their allocation which they had an opportunity to refuse. However, this method lowers the statistical power because of potential loss of subjects. The dental examiner was blinded to the group allocation through a dental receptionist who arranged the schedule.

Rong et al.’s study (2003) was a randomized controlled trial which took place in kindergartens. In the randomization process, kindergartens were stratified into 3 strataums according to the children’s general socioeconomics background. Then they were randomly assigned to the intervention or control groups by drawing lots.

The randomization in Feldens et al.’s study (2010) was supervised by a researcher who was not involved in selecting the eligibility of subjects. The names of the eligible participants were separately placed in an opaque sealed envelopes and block randomization was performed.

The randomized selection of subjects in Kowash et al.’s study (2000) was performed by the Office of Population Statistics, with allocation into 4 intervention groups and 1 control group using a computer. The control group was not contacted deliberately until the children were 3 years old to avoid bias and sensitization. The
oral health examinations of children in the intervention groups were carried out in a volunteer home and children in the control group were examined at 2 nursery schools.

Because of the religious profile in Jerusalem, the sampling method in Sgan-Cohen et al.’s (2001) study was purposive to better correspond with the socioeconomic variables. Child health centres for the intervention and control groups were selected in pairs. The statistical power of the sample size was calculated and the numbers of participants selected had exceeded the estimated numbers.

**Blinding**

Blinding was not carried out among the participants because it is often difficult to blind the subjects in educational interventions. Although co-intervention should be limited, it would not be ethical to withhold oral health information if subjects in the control group ask for it. To minimize bias, the data collection and education were done by different people in the studies.

**Differences between groups**

In most of the studies, baseline data, such as parents’ or caregivers’ educational level and family income, were compared between the intervention and control groups, (Mohebbi et al., 2009; Rong et al., 2003; Plutzer & Spencer, 2008;
Feldens et al., 2010). The exception was the Kowash et al. (2000) study which targeted a low socioeconomic suburb. The nonsignificant difference in the baseline data further supports that the result is likely due to the effect of the intervention and also favours the external validity of the studies.

The only difference between the intervention and control groups in all studies was the educational intervention given. The educational interventions were targeted to parents or caregivers of the children while the control group only received usual routine care or no intervention.

**Outcome measures**

To ensure the reliability of examination outcome, dental examiners and interviewers were trained in dental examination or data collection before the collection of results in all studies.

The prevalence of ECC was calculated based on the definition of the National Institutes of Health (Feldens, et al., 2010; Plutzer & Spencer, 2008). In the Mohebbi et al. (2009) study, the levels of dental and enamel caries and number of decayed teeth were determined according to WHO recommendations. Radike’s and Palmer et al.’s criteria were used in Rong et al.’s and Kowash et al.’s studies, respectively. In Sgan-Cohen et al.’s study, questionnaires were pretested.

The intra-examination reproducibility in four of the studies was assessed with
kappa scores from 0.7 to 1.0 (Feldens et al., 2010; Mohebbi et al., 2009; Rong et al., 2003; Kowash et al., 2000). The questionnaire that was used to test the oral health habits of children and parents’ knowledge of and attitudes towards oral health in Rong, et al.’s (2003) study was also tested, with a kappa value over 0.8. In Sgan-Cohen et al.’s study (2001), the interviewers presented themselves as representatives from the government survey department to minimize potential bias, such as giving answers to please the health care providers.

Most studies compared data between the intervention and control groups or baseline data with the prevalence of dental caries in reporting the effect size (Mohebbi, et al., 2009; Plutzer & Spencer, 2008; Rong, et al., 2000; Feldens, et al., 2010; Kowash, et al., 2000). Besides the dental caries increment, improvement in oral health behaviours was also measured in preventing early childhood caries (Sgan-Cohen et al., 2001).

All 6 studies reported a statistically significant value from $P = 0.00016$ to $P < 0.05$. Mohebbi et al., (2009) provided a confidence interval to support their findings while multivariate logistic regression analysis was used by Plutzer & Spencer’s 2008. The Mann-Whitney test was used in Feldens et al.’s study (2010). Kowash, et al. (2000) adapted the Kruskal-Wallis test for the prevalence of caries and the chi-square test to compare the improvement in oral health behaviours. Sgan-Cohen
et al. (2001) used the McNemar test to compare results from baseline to 6 months and the Pearson chi-square test between groups.

**Drop-out rates**

The total mean participant drop-out rate in five of the studies ranged from 12.25% to 29.4%. One of the studies did not mention the drop-out rate (Kowash et al., 2000). Most of the studies had a long follow-up period, and the highest drop-out rate occurred in a study had an 18-month follow-up period (Plutzer & Spencer, 2008). The main reasons for drop-out were moving out of town and not being able to be contact after several attempts. However, only one of the studies used intention-to-treat analysis in analysing the results (Feldens et al., 2010).

**2.3 Summary and Synthesis**

**2.3.1 Summary**

After reviewing the quality assessment, three of the studies (Mohebbi et al., 2009; Rong et al., 2003; Feldens et al., 2010) were given a rating of 1++ because they fulfilled most of the criteria in the SIGN checklist and had little risk of bias. Although Sgan-Cohen et al., (2001) had a quasi-experimental study design, some criteria in the SIGN checklist could not be met. However, this was unlikely to alter the conclusions of the study. Plutzer & Spencer, 2008 and Kowash et al. (2000) were given a level of 1+ because the concealment method was not mentioned which
could have led to overestimation of the effect of the intervention.

The review included 6 studies in which the educational intervention aimed at preventing ECC in children below 6 years old. Four of the six studies were large-scale (Plutzer & Spencer, 2008; Rong et al., 2003; Feldens et al., 2010; Sgan-Cohen et al., 2001) involving 500 to 731 participants. The target audience for the educational intervention was the parents or caregivers of children.

Educational information was commonly given through contact with the caregivers in the selected studies. One-to-one interviews were used in most studies (Mohebbi et al., 2009; Feldens et al., 2010; Kowash et al., 2000; Sgan-Cohen et al., 2001). Mohebbi et al.’s (2009) and Plutzer & Spencer’s studies (2008) consisted of telephone consultations so caregivers could discuss a specific issue. In Rong et al.’s study (2003), education was given to the parents by teachers in parent-teacher meetings.

Other educational strategies involved written materials such as leaflets to reinforce the OHE (Mohebbi et al., 2009; Sgan-Cohen et al., 2001). While in Plutzer & Spencer’s study (2008), educational booklets were the main strategy and the material was delivered to caregivers through mail. Videos and audiotapes with illustrations were used in Rong et al.’s study.

The frequency of educational contact (including telephone contact) with
parents or caregivers varied among studies. The total number of contacts varied from at least 1 in Plutzer & Spencer’s study (2010) to 10 in Kowash et al.’s study (2000). Kowash et al.’s study (2000) also tested the effect of different frequencies of contact on caries outcome. The results showed no difference in the caries increment between 3 and 10 contacts. However, in regarding to oral health behaviours, it showed significant improvement in groups with more contacts.

The duration of each contact ranged from 5 to 15 minutes (Mohebbi et al., 2009; Kowash et al., 2000; Sgan-Cohen et al., 2001) and up to 30 minutes (Feldens et al., 2010). Rong et al.’s study (2003) did not mention the duration, possibly because the intervention was given in parent-teacher meetings and it was not possible to define the duration of oral health related matter discussed in the meeting. Shorter educational contacts usually included distribution of leaflets and were carried out in child health centres (Mohebbi et al., 2009; Sgan-Cohen et al., 2001).

The aetiology of ECC is well established, and is frequently associated with a poor diet and bad oral health habits (Colak, Dulgergil, Dalli & Hamidi, 2013). In summarizing the educational content, oral hygiene and dietary advice were the most exercised topics in the selected studies. Oral hygiene generally consisted of tooth brushing and the use of fluoride toothpaste. Dietary advice often included avoidance of sugary foods, drinks and snacks. Feeding habits such as not using a
bottle as a pacifier and encouraging the use of a cup were also included. in the
studies of Mohebbi et al., (2009), Plutzer & Spencer, (2008), Feldens et al., (2010),

The summary concluded that studies have showed effectiveness in oral health
education, so it is necessary to translate these experimental findings into practice as
oral health is important to general health and quality of life.

In summarizing the results, the percentage of children with caries after the
intervention ranged from 0-4% compared with 26-33% in the control groups
(Mohebbi et al., 2009; Kowash et al., 2000). Among child with severe ECC, a 7.9%
and 13.6% differences were found between the intervention and control groups in
the Plutzer& Spencer, (2008) and Feldens et al, (2010) studies, respectively. Four
of the studies also showed improvements in oral health behaviours or feeding habits
(Rong et al., 2000; Feldens et al., 2010; Kowash et al., 2000; Sgan-Cohen et al.,
2001). Although the measured outcomes were not unified among all studies, they
all demonstrated a statistically significant difference in at least one outcome
measure between the intervention and control groups.

2.3.2 Synthesis

The target group

Young children are not capable of performing health behaviours in early life,
and parents or caregivers should be responsible. Therefore it is recommended that parents or caregivers be targeted in the health promotion (Mohebbi et al., 2009; Plutzer & Spencer, 2008; Rong et al., 2000; Feldens et al., 2010; Kowash et al., 2000; Sgan-Cohen et al., 2001).

The innovation

Routine health visits at the MCHCs seem to be the appropriate times for the innovation to be carried out. Nurses may combine parts of the OHE material into their general health promotion (Mohebbi et al., 2009).

Poor diet and oral health habits are highly associated with ECC (Colak et al., 2013; Harris et al., 2004) and the review of articles showed the significance of education in improving oral health behaviours and decreasing the incidence of caries. Education on oral hygiene practices such as tooth brushing and the use of fluoride toothpaste (Mohebbi et al., 2009; Plutzer & Spencer, 2008; Rong et al., 2003; Kowash et al., 2000; Sgan-Cohen et al., 2001) should be given. Feeding habits such as not sleeping with a bottle, not giving sugary drinks in a bottle and advice about starting to use a cup, and dietary advice such as regular feeding patterns and not giving sugary food, drinks or snacks ... (Mohebbi et al., 2009; Feldens et al., 2010; Kowash et al., 2000; Sgan-Cohen et al., 2001) are recommended in the educational intervention.
OHE is suggested to be delivered in multiple sessions (Mohebbi, et al., 2009; Plutzer & Spencer, 2008; Rong, et al., 2003; Feldens, et al., 2010; Kowash, et al., 2000; Sgan-Cohen, et al., 2001) during routine check-ups of children (Mohebbi et al., 2009; Sgan-Cohen et al., 2001). One-to-one education allows nurses to deliver age-appropriate oral health instruction and feeding advice which can address the individual needs of children and caregivers.

Printed material (Mohebbi et al., 2009; Plutzer & Spencer, 2008 & Sagan-Cohen et al., 2001) or videos (Rong et al., 2003) can also be used to supplement the educational advice. One study had better outcomes in prevention of caries when printed material was provided along with the oral health messages (Mohebbi et al., 2009). With the support of printed material, education contact with clients can be shortened, i.e. less than 15 minutes (Mohebbi et al., 2009; Kowash et al., 2000; Sgan-Cohen et al., 2001), which would favour the feasibility and acceptability of the innovation.
CHAPTER 3

Implementation Potential Assessment

Dental health education has shown to be effective in preventing early childhood caries and improving positive oral health behaviours (Feldens et al., 2010; Kowash et al., 2000; Mohebbi et al., 2009; Plutzer & Spencer, 2008; Rong et al., 2000; Sgan-Cohen et al., 2001). In this chapter, the transferability of the findings and feasibility and cost-benefit ratio of the innovation will be discussed.

Target Audience

A study carried out at the MCHCs by Chan, Tsai & King (2002) discovered that 97% of the respondents wished to receive more information on oral health care. It is important to educate caregivers in order to help children establish good oral health.

The target audience of this innovation includes parents and caregivers of preschool children. Participants are required to speak Cantonese and understand written Chinese. In 2014, there were of 2017 new cases registered at MCHC X. Therefore the estimated target audience is around 2 000 to 2 500.

Proposed Setting The innovation is proposed to be implemented in the MCHCs. The MCHCs are operated under the Family Health Service (FHS) of the
Department of Health. Currently, there are 31 MCHCs in Hong Kong which provide a comprehensive range of health promotion and disease prevention services to over 90% of children from birth to 5 years old (Family Health Service, 2014).

The pilot of this innovation will be organized in 1 of the 31 MCHCs where qualified public health nurses will be involved in carrying out the innovation. After the pilot test, the OHE programme will be started simultaneously at all 31 MCHCs.

3.1 Transferability of the Findings

To determine whether the OHE programme is transferable to the proposed setting, the characteristics of the clients, the underlying philosophy of care in the target setting, the number of clients to benefit from the innovation and the implementation and evaluation times should be considered before application.

3.1.1 Target Population and Setting

All six studies were conducted overseas. Despite the cultural disparity, they are all high quality studies (Please refer to appendix 2 for ratings). Two of the studies were conducted in child health centres (Mohebbi et al., 2009; Sgan-Cohen et al., 2001) and two during home visits (Feldens et al., 2010; Kowash et al., 2000). One was conducted in a kindergartens (Rong et al., 2003) while Plutzer & Spencer (2008) recruited their clients in an antenatal clinic. Although not all studies were carried out in child health centres because of the different health care systems in
different countries, the system in Hong Kong with 31 MCHCs and service coverage of 90% of children, it provides an appropriate platform to carry out the innovation. In addition, the majority of the reviewed studies were performed by registered nurses or healthcare professionals, which is highly similar to the manpower required in the targeted setting.

All the clients in the selected studies were parents or caregivers of preschool children aged 3 years old or below. In the MCHCs, the clients are preschool children from birth to 6 years old, similar to those in the studies.

Hence, the transferability of the proposed target population and setting is high.

3.1.2 Philosophy of Care

The aim of this education programme is to promote oral health care and reduce early childhood caries in preschool children by facilitating parents and caregivers to improve the oral health of their children. The vision and mission of the FHS are to promote the health and well-being of children, women and families in Hong Kong by empowering individuals, families and communities to improve their health through evidence-based strategies by providing quality-assured and cost-effective service. The OHE programme matches the philosophy of care in the target department and the child health centres.

3.1.3 Benefits of the Innovation
Comparing the crude birth rate (CBR) statistics acquired from the Food and Health Bureau with the total number of registration in MCHCs, show there were 61,493 new cases registered in all MCHCs with CBR of 12.8 in 2012, 44,442 new cases with a CBR of 7.9 in 2013 and 58,322 new cases with a CBR of 8.5 in 2014. There is steady service utility of MCHCs. Therefore, a sufficiently large number of children can be benefit from the OHE programme.

3.1.4 Timeframe

To minimize disturbance in service and enable nursing staff to familiarize themselves with the oral health care guideline, the education programme will commence during the summer, a “non-peak” season. During the summer, most parents would take their child on vacation trip and also because of the “Muong Lan” Festival, the birth rate is relatively low.

The planning stage includes setting up a task force, designing a working protocol and materials, affirming the operational goal, and training staff, as well as collecting feedback. Thus, starting the planning stage from February to June is recommended. The pilot trial will start in July and run for one month. Data collection, evaluation of the pilot test and refining the guideline will start on the same month and last for 3 months. For timeframe, please refer to appendix 7.
3.2 Feasibility

3.2.1 Freedom of Implementation and Termination

Nurses in the target setting have the freedom to implement the innovation. Nurses also have to autonomy to terminate the programme if the outcome is undesirable or un-favour the target population.

3.2.2 Interference with Current Function

A child will visit the MCHC for at least seven times for either developmental screening or vaccinations. At each visit, the nurse educates parents on childcare and parenting issues. Oral health education is given during these routine visits. However, the innovation may slightly increase the interview time and therefore increase clients’ waiting time. An information leaflet will help facilitate and minimize the explanation time. Experience shows that service capacity is able to bear a slight increase in interview time, and therefore no extra manpower is required.

Consensus is important among staff, especially when there is a possibility an increased workload. Generally, nurses are cooperative with innovations. Before commencing the programme, a brief presentation can be done during staff training to raise nurses’ awareness of and interest in the importance of oral health care promotion. Adequate communication with staff can also reduce friction and influence positive attitudes towards the innovation.
3.2.3 Organisational and Administrative Support

The management levels of the Department of Health open-minded and supportive in developing evidence-based innovations. Approval will be sought from the management level during the development process. To ensure the practicality of the intervention and fit in the organizational climate, meeting(s) will be held with subject doctors and nurses to explore expert opinions.

One of components of the parenting programme in the MCHCs is to equip parents with knowledge and skills to bring up healthy children through anticipatory guidance on childcare (FHS, 2014). In Hong Kong, OHE is not available until children enter kindergarten and dental care service is only available to children when they enter primary school. Most dental service is provided by private sector. With the dense population in Hong Kong, the dentist to population ratio has reached 1:3200 (Chu, Wong, Suen & Lo, 2013). A study by Lu et al. 2011 found that oral health at a young age is positively related to better oral health in early adulthood. The innovation can help reduce the burden on dental care and with confidence, increase awareness of oral health care. Hence, this OHE innovation will surely gain organizational and administrative support.
3.2.4 Staff Training

All nurses in MCHCs are professionally trained in managing health education interviews and holding health talks and workshops. Every year, the FHS collaborates with the Oral Health Education Unit (OHEU) of the Department of Health in organizing an oral care health talk for newly-hired nurses. Therefore nurses are equipped with basic knowledge in oral health care.

Currently there is a Medical Officer who is responsible for the subject “Parenting”. The OHE programme will be conducted under “Parenting”. In addition, for this study, one nurse in each centre will be assigned to be the subject in-charge. To ensure all nurses’ knowledge of oral health care is up-to-date and consistent, a refresher course will be organized with the OHEU and will be filmed. Only the Medical Officers and the subject in-charge will be invited to the refresher course to minimize disturbance in the centres’ operations. A video of the refresher course will be distributed to all MCHCs to instruct the nurses. The subject in-charge will be responsible for providing support to staff and collecting feedback. Meetings will also be held regularly to evaluate the implementation and opinions from the staff.
3.2.5 Equipment and Facilities

A booklet on oral health care- “Oral Health Care for your Children” produced by the OHEU is currently available. MCHCs can estimate the number needed and request them from OHEU. Also a video on “Cleaning your Baby’s Mouth” is available on the FHS website. Nurses can introduce our website to clients as well as distribute the booklet. We can also collaborate with the Health Information Section in printing tip sheets (appendix 8A to 8D) for caregivers to assist nurses in explanation.

3.2.6 Evaluation

A semistructured questionnaire will be used in evaluating the understanding level and usefulness of the OHE interview and the OHE material after health visits (Appendix 9). Also, a survey on caregivers’ oral health knowledge, attitudes and behaviour will be prepared (Appendix 10).

3.3 Cost-Benefit Ratio of the Innovation

3.3.1 Potential Risk

The innovation is an educational programme. It is considered safe and there is no risk to clients or health care workers.

3.3.2 Potential Benefits from Implementing the Innovation

Caregivers’ dental beliefs, knowledge, attitudes and practices influence
children’s oral condition, especially among preschoolers, where caregivers have more control over feeding practices. Local research has found that 77.4% of dentate children have already developed snacking habits, of which, 50% involves eating candy (Chan et al., 2002).

According to a large scale Oral Health Survey in 2011, 50.7% of 5 year-old children have experienced tooth decay and the mean number of decayed/missing/filled teeth (dmft) was 2.5. The tooth decay of 49.4% (25900) of these children was left untreated. Most of the dental health service in Hong Kong is served by the private sector. There are no regulations on fees, which vary considerably (Chu et al., 2013). Additionally, dental service for children is not available until primary school. When these untreated children become eligible to receive school dental service, there is a huge burden in terms of cost, appointment quotas and work load.

In Hong Kong, the risk of dental decay appears to be related to the preschool period (Evans & Lo, 1992). Kowash et al.’s study reported that initiating OHE before eruption of the primary teeth has a long-term effect in preventing caries. At the same time, the oral health awareness of parents and caregivers may also increase.

3.3.3 Risks of Maintaining Current Practices

Besides the financial burden, dental caries induces pain, affects children’s
willingness or ability to chew, bite, causes premature tooth loss and even disturbs
the growth of permanent teeth. Premature tooth loss may affect children’s
appearance, and hence lower their self-esteem. Disturbance in eating may lead to
weight lost and hence affect the growth of the child.

3.3.4 Cost-Benefit Ratio

The potential item costs such as staff training, evaluation and hand-outs, in
implementing the programme are listed in Appendix 11 and Appendix 12. The total
cost of the programme is estimated at $84,085.6.

With reference from Prince Philip Dental Hospital’s schedule of fees for
private patients, caries restoration treatment varies from $600 to 800 per service
depending on the materials used. By calculating the medium cost, potential dental
treatment costs for all children are roughly estimated at $19,978,000.

The Department of Health will have an estimated savings of $2,612,944.4
(Appendix 13) with a 15% reduction in children with caries.

3.4 Summary

The innovation proposed is transferable to the target setting, and is feasible
and cost-effective. The MCHCs provide an excellent platform for the OHE
programme and can help to promote better oral health practice in the majority of
children, reduce caries and hence, bring better quality of life to children in Hong Kong.

Furthermore, the evidence-based programme can upgrade MCHC service by serving the health and well-being of children in a more holistic way. With improvement in service, client satisfaction will also increase, providing a more harmonious relationship between clients and nurses. It could also increase job satisfaction among nurses.
CHAPTER 4

Evidence-Based Practice Guideline

4.1 Guideline Title

An educational guideline to improve the oral health habits and dental condition of preschool children.

4.2 Aim and Objectives of the Guideline

Aim

The aim of the guideline is to provide evidence-based educational interventions for parents and caregivers to increase their awareness of oral health care and improve oral hygiene and prevent caries in preschool children.

Objectives

1) To increase and instil awareness to improve or maintain optimal oral health hygiene in preschool children

2) To enable parents and caregivers to culture a healthy feeding habits

3) To facilitate parents and caregivers in improving children’s oral health behaviours

4.3 Intended Users

All nurses and doctors in the MCHCs are encouraged to use this guideline in providing oral health education to parents and caregivers of preschool children.
4.4 Target population

All parents and caregivers of preschool children who visit MCHCs.

4.5 Recommendations

The grading of the recommendations is based on the “SIGN Grading System 1999-2012” (Appendix 14). The grading system helps recommend the best practice based on the evidence reviewed in Chapter 2.

The innovation will be implemented in two forms, nurses’ interviews and distribution of printed materials.

Interview

The OHE programme will be introduced into the integrated child health programme. Information on oral health care will be given by trained nurses to parents and caregivers during regular health and immunization visits. It is estimated that the innovation will slightly increase the interview time by about five minutes or less.

The OHE will be divided into four parts according to the age of the child. The content of the OHE is shown below:

Part I

1) Distribute pamphlet “Oral health care for your children”

2) Briefly introduce the content of the pamphlet
3) Educate on oral health behaviours and instruction

Parts II to IV

1) Reinforce oral health behaviours and instruction

2) Educate on proper feeding and dietary habits

3) Explain the importance of dental check-ups

Printed-materials

The OHE will be supplemented by an oral health pamphlet “Oral Health Care for your Children” published by the OHEU. The pamphlet already includes topics on basic oral anatomy, the causes and prevention of dental caries, instructions on oral hygiene practices, proper feeding and dietary habits and the importance of regular dental check-ups. Four tip sheets will also be distributed according to the child’s age during the interviews (Appendix 8A-8D).
### 4.5.1 Overview of the Recommendations

<table>
<thead>
<tr>
<th>Recommendation 1.0</th>
<th>Frequency of contacts in the OHE programme</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 2.0</td>
<td>Aetiology of tooth decay</td>
<td>B</td>
</tr>
</tbody>
</table>

**Recommendation 3.0 - Oral hygiene practice**

<table>
<thead>
<tr>
<th>3.1: Tooth brushing practice</th>
<th>3.1.1: Brush baby’s teeth with a soft baby brush as soon as they appear in the mouth</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.1.2: Parents or caregivers should assist in brushing their child’s teeth.</td>
<td>B</td>
</tr>
<tr>
<td>3.2: Use of fluoride toothpaste</td>
<td>3.2: Use of fluoride toothpaste</td>
<td>A</td>
</tr>
</tbody>
</table>

**Recommendation 4.0 - Feeding & Dietary Habits**

<table>
<thead>
<tr>
<th>4.1 Feeding habits</th>
<th>4.1.1: Do not let children sleep with a bottle filled with milk or sugary drinks.</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.1.2: Do not give sugary drinks in a bottle; drink from a cup starting at seven months old and stop drinking from a feeding bottle by eighteen months old.</td>
<td>B</td>
</tr>
<tr>
<td>4.2 Dietary habits</td>
<td>4.2.1: Avoid to give snacks frequently.</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>4.2.2: Caregiver should refrain or limit children’s consumption of sugar-containing food and drinks.</td>
<td>A</td>
</tr>
</tbody>
</table>

**Recommendation 5.0** Regular dental check-ups | B

For details of the recommendations, please refer to Appendix 15.
Chapter 5

Implementation Plan

The guideline is aimed to improve the oral health habits and dental condition of children by educating parents and caregivers. In order to achieve this innovation, a well-organized implementation plan is needed. In this chapter, the communication plan, pilot testing and evaluation plan will be discussed.

5.1 Communication Plan

5.1.1 Identifying the Stakeholders

Engaging stakeholders in the evaluation steps can engage them in sharing responsibility, fostering input and promoting the credibility of the evaluation. Also, if stakeholders are involved during the process, they are more likely to support the evaluation (Centers for Disease Control and Prevention, 2005). The proposed guideline will be carried out in MCHCs under the Department of Health. Therefore, two major groups of stakeholders will be involved, those on the management level and those on the clinical level.

Management Level

The structure of the management level in the Department of Health has a top to down structure, with the Principle Medical Officer and Senior Medical Officers.
The nursing discipline involves (from top to down), the Principle Nursing Officer, Chief Nursing Officer, and Senior Nursing Officers (SNOs).

The innovation involves a dental refresher course and dental examinations, so liaison with the dental department is necessary. The structure of the management level of the dental service includes the Consultant in-charge, consultants and the Principal Dental Officer of the dental service and the Consultant in-charge of the OHEU.

Approval must be sought from the management levels before implementation of the innovation.

Clinical Level

Doctors and nurses such as Medical Officers (MO), Nursing Officers (NO) and the frontline Registered Nurses (RNs) are the stakeholders at the clinical level. MOs and NOs will be involved in the innovation to ensure smooth operation of the clinic and will assign manpower. RNs are the frontline staff who will use the guideline and actually provide the OHE. Gaining support from the clinical level will help in facilitating negotiation with administrators to support the implementation of the innovation.

5.2 Communication with stakeholders
After the stakeholders are identified, the communication plan will then be divided into three parts, initiating, guiding and sustaining the change.

5.2.1 Initiating the Change

Communication with Administrators

As mentioned earlier, it is important to gain support from the clinical level. Before meeting with administrators, MOs and NOs will be approached informally to gain their understanding. Also, seeking their professional advice can help in refining the guideline.

A formal meeting with the administrators will then be organized. A 30 minute PowerPoint presentation will be used. In addition to current practice and the rationale for and benefits of the innovation, the presentation will also focus on the feasibility, benefits and cost-benefit of the guideline. According to the ‘2011 Oral Health Survey’, 50.7% of the 52300 5-year old children in Hong Kong have had tooth decay with a mean number of 2.5 decayed teeth per child. The evidence-based innovation is estimated to have a cost savings of $2,612,944.4 if there is a 15% reduction in the number of caries. These figures should arouse their interest and favour approval.

Communication with frontline staff
Frontline staff includes those who use the guideline and give OHE to our target clients (i.e. MOs, NOs and RNs). An introduction about the purpose of the OHE programme, the evidence supporting the innovation and an explanation on how to use the EBP guideline and educational materials will be given at the beginning of the refresher course. Staff members are also encouraged to express their opinions and concerns regarding this innovation. All concerns will be answered and opinions will be collected and studied in the committee’s regular meeting. To address worries about and resistance towards the innovation, the telephone number and email address of the assistant will also be given to frontline staff to provide support and answer enquiries.

5.2.2 Guiding the Change

*Working Committee*

After approval is granted, an ‘Oral Health’ working committee will be designated to facilitate implementation of the innovation. By setting up a committee, responsibilities can be shared. Regular meetings will be held to discuss suggestions and criticisms and discuss solutions to problems.

The committee will include a chairperson, a consultant, an assistant, a data analyst and two clerical staff.
Chairman

The author of the innovation will be the chairperson. The chairperson will oversee the whole process and be responsible for evaluation, finalizing the guideline and educational materials as well as submission of reports.

Consultant

An MO will act as a consultant. An experienced consultant can provide high levels of evaluation expertise (Centers for Disease Control and Prevention, 2005). The consultant will also assist the Chairperson in communicating with administrators.

Assistant

An SNO will assign an RN to be an assistant in the project. The assistant will be the contact person for communicating with clinical level staff, such as collecting comments or criticism about the innovation. After receiving and reviewing various opinions, the assistant will help fine-tune the guideline and educational materials.

Data Analysis and Clerical Staff

The data analyst will be responsible for interpreting the data collected. Clerical staff will be needed for data entry, distribution of educational materials and other administrative support.
5.2.3 Sustaining the Change

Support from both management and clinical staff is important in influencing the success of the innovation. Conducting an evaluation can assess and improve the quality and determine the effectiveness of the programme (McKenzie, Neiger & Thackeray, 2012). Before all 32 MCHCs implement the innovation, a pilot test will be carried out and the evaluation will be studied. Administrators will be briefed on the progress of the programme and evaluation will be done regularly.

Resistance is expected and common in a change process. Some staff may be able to change practice quickly while others may experience multiple transitions. However, many large-scale corporate programme failures occur because of employee resistance (Bovey & Hede, 2001). To reduce anxiety about the programme, we will emphasize that staff can report difficulties or concerns to the OHE subject in-charge and feedback will be given as soon as possible. In addition, staff opinions are valuable, and their comments will be collected and used in revising the guideline to enhance its completeness.

5.3 Pilot Test

A pilot study is not a study to test a hypothesis (Leon, Davis & Kraemer, 2010). A pilot test is a small scale test and the fundamental purpose of conducting
such study is to examine the feasibility of an approach that is intended to ultimately be used in a larger scale study (Leon, Davis & Kraemer, 2010). A pilot study also provides an opportunity to identify potential problems, for example concerns with the setting, logistics, and the need for more staff training (Arain, Campbell, Cooper & Lancaster, 2010; Feeley et al., 2009; U.S. Department of Health & Human Services, (n.d.)). Thus, the primary measure of this pilot test is to assess the feasibility of implementing the guideline:

(i) The acceptability and compliance of staff to the innovation

(ii) Clients' acceptability of the OHE programme

(iii) Identification of potential obstacles and limitations of the OHE programme

The secondary measures are:

(1) Assessment of the comprehensiveness of the educational content and materials:

(i) To assess the sufficiency of the OHE content and participants’ understanding of it

(ii) To evaluate the readability and integrity of the tip sheets
(2) To assay the evaluation tools

The target participants of the pilot test will adapt the same inclusion and exclusion criteria as used for the EBP guideline. Participants will be parents or caregivers of preschool children who have registered in the selected MCHC, and are able to speak Cantonese and understand written Chinese.

MCHC X from the Hong Kong district will be selected for executing the pilot test, because it is situated between old and newly-developed areas. This will increase the chance of enrolling participants from different socioeconomic levels. This MCHC has a total of thirteen clinical staff, including two MOs, three NOs and eight RNs. Nine of the nurses have Public Health qualifications. The NO in charge will assign one of them to be the subject officer for this OHE programme.

Children will attend MCHC for developmental screening or vaccinations at least seven times before they reach school age. It is recommended that the OHE interventions be done when a child is 1 month, 4 months, 12 months and 18 months old. A one month pilot test with a one month period will provide enough time for conducting the pilot and collect questionnaires from parents and caregivers.

5.4 Pilot Test Plan
All clinical staff at MCHC X will attend the “Oral Health Care Refresher Course” on a non-clinical Saturday. The refresher course will be held in the auditorium in the OHEU. The refresher course will consist of three parts. The first part will be a briefing session given by the writer to introduce the proposed innovation. Background on the dental condition of Hong Kong children, and the significance of and affirming needs for this innovation will be presented, so that staff will be aware of the importance of the programme. Second part will be presented by the Senior Dental Office from the OHEU. Information on oral health care for children, such as oral anatomy, tooth eruption, how to clean a baby’s mouth, how to brush children’s teeth, dietary habits, pathophysiology of early childhood caries and case sharing, will be included. The third part will be an introduction to the EBP guideline and details of the OHE programme. It is important that the OHE be delivered with consistency, so staff must understand the programme rationale. Therefore, time will be given for questions and concerns. A staff manual will be distributed with instructions on when to give the intervention, what to emphasize when giving the OHE and when to give out printed material.

After the refresher course, staff will be allowed two weeks to familiarize themselves with the oral health booklet and tip sheets. The recruiting process will begin once the pilot test is initiated. Eligible clients will be recruited when they
register their children at the registration counter. Clients who agreed to participate in the programme will be given explanatory notes on the purpose of the programme, the confidentiality of the information collected, a consent form and a questionnaire. The OHE is mainly divided into four parts. Tip Sheet 1 contains information on oral health behaviours and will be given to clients with children who are one month old. Tip sheets 2, 3 and 4 are reinforcements of the oral health behaviours, instruction and information on proper feeding and dietary habits and the importance of dental check-ups. They will be given to clients with children who are four months, twelve months and eighteen months old, respectively. Nurses’ explanations will be given along with distribution of the tip sheets. Each client will also be given a pamphlet “Oral Health Care for your Children” and brief introduction to the content of the pamphlet.

5.4.1 Nature of Participants

Targeted participants are caregivers of preschool children registered at the MCHCs who are able to speak Cantonese and understand written Chinese. The non-eligible clients are children with oral congenital abnormality.

5.4.2 Sample Size

The sample size directly affects the sufficiency of the statistical power. Determining the optimal sample size can assure detection of statistical significance
The two-sample \( z \)-test will be used to evaluate the primary outcome. To calculate the sample size, the computer software ‘Piface Application’ was used with a level of significance of 0.05, power of 80% and a 95% confidence interval. A sample size of 128 participants is required. With an estimated attrition rate of 30%, the total sample size should be 167.

5.4.3 Evaluation of Pilot Test

Questionnaires will include a Likert scale, with a four point rating system. The four point system was adopted because people are more likely to choose ‘Neutral’ so that they can finish the survey quickly. Also, study showed that Chinese choose midpoint answers more frequently even when they feel positively about an item (Lee, Jones, Mineyama & Zhang, 2002). By making clients choose, they may be more discriminating in giving answers. Part A in the questionnaire (appendix 8) evaluates client acceptability of the OHE intervention.

The secondary outcome will include assessing the adequacy and understanding of the OHE content and evaluating the readability and integrity of the tip sheets. Parts B and C of the questionnaire will evaluate the educational content and the tip sheets. Open-ended questions will also be used to collect comments and feedback from participants.
RNs will be actively involved in the OHE innovation, and their experiences in the pilot test and comments are valuable in advancing the programme. A semi-structured questionnaire (Appendix 17) was developed to collect staff evaluations. The questionnaire will be distributed after the pilot test. It will assess the usefulness of the OHE tip sheets. Staff acceptability of and compliance with the OHE programme will also be evaluated.

After attending the OHE programme refresher course, staff will be given an evaluation form (Appendix 16) to assess the content integrity, usefulness of the course and areas where they want to know more. Comments collected will be used in refining the next refresher course.

Logistics from recruiting of participants, giving out and collecting questionnaires and restocking of the educational materials will also be reviewed. The subject nurses in each centres will be responsible for collecting all the questionnaires and forwarding them to the committee via internal mail.

5.4.4 Timeframe of Pilot Test

The pilot test, including recruiting participants, collecting comments and feedback, evaluating the pilot test and making modifications in the guideline or workflow is estimated to take 3 months.
Chapter 6

Evaluation Plan

Evaluation is the systematic investigation of the quality, value and significance of the guideline (CDC, 2012). A strong evaluation approach can ensure accurate conclusions about the effectiveness, feasibility and acceptability of the OHE programme. In this chapter, outcome evaluation and data collection and analysis will be discussed.

6.1 Outcome Identification

6.1.1 Patient Outcomes

The patient outcomes include the dmft index measuring the tooth decay, semi-structured questionnaires measuring the oral health habits of the children, and a pre-post intervention questionnaires in measuring parents and caregivers’ oral health knowledge and attitude changes.

A. Primary Outcome: The percentage of tooth decay detected in the dental examinations will be compared with the mean index in the 2011 Oral Health Survey and the effect size of caries prevalence in the reviewed studies.

B. Secondary Outcome: Oral health habits will be compared with the 2011 Oral Health Survey.
C. Secondary Outcome: Parents and caregivers’ oral health knowledge and attitudes at baseline will be compared with post-intervention results assessed when children reach 2 years of age.

6.1.2 Healthcare Provider Outcomes

Staff satisfaction with the OHE programme will be assessed (Appendix 18). Also, open-ended comments will be analysed to improve the feasibility of the programme.

6.2 Design

Participants will be recruited during the child’s visit to the MCHC at one month old. Participants are requested to fill out the questionnaires at baseline and six months after the intervention. A dental examination will be done when the child reaches two years old.

6.3 Data Analysis

The data collected will be entered into the computer by clerks and SPSS version 22.0 will be used to analyse the data. The data analysis will be performed by the writer and a data analyst.

The difference in tooth decay between the intervention group and that in the ‘2011 Oral Health Survey” will be determined by using the two sample z-test.

Oral health habits in the intervention group will be compared with data in the
‘2011 Oral Health Survey.’ Pre- and post-test of the oral health knowledge and attitudes will be categorized and then analysed by the chi-square test to evaluate the effectiveness of the innovation.

A statistical significance of 0.05 will be applied for all tests.

6.4 When to take the Measurements

To enhance the response rate, questionnaires will be done at the clients’ convenience. The pre-test questionnaire will be done while the clients are waiting for the first nurse interview. Dental check-ups will be done when the child is 2 years old and the post- intervention questionnaire will be done when they are waiting for the check-up.

6.5 Effectiveness Criteria

The main purpose of this guideline is to provide education to parents and caregivers on improving the oral health and reducing early childhood caries in preschool children. Therefore, the guideline will be considered effective when the primary outcome and one of the secondary outcomes can be achieved.

6.5.1 Primary Outcome- Tooth Decay

The two sample z-test will be used to analyse the dmft index collected from the dental examination which will be compared with the mean dental decay reported in the ‘2011 Oral Health Survey’.
In the reviewed studies, improvement in the prevalence of caries varied from 15.4% to 33%. Therefore, a minimum 15.4% reduction in the prevalence of caries will indicate success of the innovation.

6.5.2 Secondary Outcomes- Oral Health Habits

The chi-square test will be used to analyse the oral health habits with those in the ‘2011 Oral Health Survey’. Parents’ and Caregivers’ oral health knowledge and attitudes will compare with the baseline and when children reach 2 years of age.

Tooth brushing frequency: In Hong Kong, only 74.5% of children brush their teeth more than two times daily (Oral Health Survey, 2011). In the reviewed studies, 87.6% (Rong et al., 2000) to 98% (Kowash et al., 2000) of children brushed their teeth twice daily. A minimum increase of 13.1% after the implementation will be considered effective.

6.5.3 Secondary Outcomes- Oral Health Knowledge and Attitudes

The oral health knowledge and attitudes of caregivers will be tested using self-administered pre- and post- intervention questionnaires. The outcomes of the questionnaires will be categorized and then analysed using the chi-square test.
Chapter 7

Conclusion

The large scale oral health surveys conducted in 2001 and 2011 showed no improvement in tooth decay experience among 5-year old children, and a local study reported that 97% of respondents wished to receive information on oral health care (Chan et al., 2002). According to the ‘2011 Oral Health Survey’, around 25,900 children have left their tooth decay untreated and the mean number of dmft was 2.5. This places a great burden on the School Dental Service in terms of cost, appointments and workload.

One of the main service areas of MCHCs is giving anticipatory guidance on childcare (i.e. nutrition, oral health). However, oral health care is not actively promoted. The OHE innovation will help to facilitate improvement in the oral health of children as well as closing this service gap in the MCHCs.

Based on the above information, the writer has proposed an evidence-based guideline, ‘An Educational Guideline to Improve the Oral Health Habits and Dental Condition of preschool Children’. The studies on which the guideline is based have high levels of evidence, which can ensure the significance of the intervention. The EBP guideline was developed to present OHE to parents and caregivers four times.
according to the child’s age. By planning changes in small steps over time, this strategy aims to achieve a long-term effect in culturing good oral health hygiene.

Before the actual implementation of the OHE programme, the implementation potential was assessed. It was concluded that the transferability and feasibility were high and the estimated cost-benefit ratio was 1:31. This evidence has confirmed that the proposed programme is worth pursuing.

A pilot test will also be conducted before the actual implementation. The primary concern of this OHE programme is to increase parents and caregivers’ awareness about improving oral hygiene and preventing caries in their children. Dental examinations will be organised to determine the number of dmft in the children and questionnaires on increases in oral health knowledge and improvements in oral health behaviours will be used to test the effectiveness of the programme.

The proposed OHE programme is expected to be a ‘win-win’ situation for clients and the Department of Health in providing more holistic health care education while reducing the health cost burden in Hong Kong.
References


Tooth Decay (n.d.). In *Tooth Club by Department of Health.* Retrieved from


## Appendix 1
### Tables of Evidence


<table>
<thead>
<tr>
<th>Study Design/ Country</th>
<th>Patient characteristics</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Length of Follow-up</th>
<th>Outcome measures</th>
<th>Effect size</th>
<th>Level of evidence</th>
</tr>
</thead>
</table>
| RCT                   | - Mothers with children of 12 to 15 months old  
- Mean age of children (Months): 12.3 at baseline  
- Mean age of children (Months): 18.3 at outcome  
N= 242  
- Parents education level and income = no difference between groups | (A) Pamphlet and reminder:  
- Pamphlet on caries prevention  
- 5 minutes oral health instruction  
- Call reminders twice at 2 months intervals (n=77)  
(B) Pamphlets Only:  
- Pamphlet on caries prevention (n= 85)  
- Topics Covered:  
  - feeding habits  
  - sugar intake  
  - transmission of bacteria  
  - oral hygiene | (C) No oral health information (n= 80) | 6 months | Primary outcome:  
(1) Enamel Caries (de) increment in children  
Secondary outcome:  
(2) Mothers perceptions of the usefulness of intervention | (1) No of new caries detected compare with baseline:  
- Group A (Pamphlet + Reminder calls) = 0 (0%)  
- Group B (Pamphlet only) = 8 (increased 14%)  
- Control= 16 (increased 26%)  
A significance decrease of enamel caries in Group A.  
$r=-2.249$ $p=0.001$ | 1++ |
<table>
<thead>
<tr>
<th>Study Design/Country</th>
<th>Patient characteristics</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Length of Follow-up</th>
<th>Outcome measures</th>
<th>Effect size</th>
<th>Level of evidence</th>
</tr>
</thead>
</table>
| RCT Australia        | Nulliparous women       | (A) Received 3 rounds of printed information through mail - Structured telephone consultation when babies aged between 6-12 months N= 165/123 
(B) Received 3 rounds of printed information through mail only N= 156/109 
Both groups received small incentive: Mouth-rinse for mothers during pregnancy period; Finger toothbrush for children or toothbrush for mothers 
Topic Covered: -importance of primary teeth -use of pacifiers -sleeping patterns -eruption of teeth -oral hygiene -nutrition | (C) No intervention N= 318/209 | 18-month | Primary outcome: Incidence of S-ECC | Number of children with severe early childhood caries (S-ECC) 
Group A (Pamphlet + Call) = 2 (1.6%) 
Group B (Pamphlet only) = 2 (1.8%) 
Control = 20 (9.6%) | A significance decrease of S-ECC in Group A (Fisher’s exact Test, P < 0.01) | 1+ |

<table>
<thead>
<tr>
<th>Study Design/ Country</th>
<th>Patient characteristics</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Length of Follow-up</th>
<th>Outcome measures</th>
<th>Effect size (Intervention vs Control)</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCT China</td>
<td>- Mean age of children (Years): 3 in intervention and control groups</td>
<td>- Teachers supervise children on tooth brushing with fluoridated toothpaste twice a day - Educate parents on: - Importance of oral hygiene - Maintaining healthy teeth - Supervise children to brush teeth</td>
<td>No oral health education provide</td>
<td>2 years</td>
<td>Primary Outcome: (1) Caries increment (dmfs) Secondary Outcomes: (Compared to baseline data) (1) Oral health habit i) Brushing teeth twice a day ii) Brushing teeth before going to bed iii) Taking sweet snacks (2) Oral health attitudes i) Believed primary teeth are important ii) Believed children’s should start brushing teeth</td>
<td>Primary: The mean caries increment= (I) 2.47 vs (C) 3.56 dmfs A 30.6% decrease in caries increment A significant different of change in mean caries increment between I &amp; C (t= 1.09; P=0.009*) Secondary: (1) i) (I)87.6% (C)69% 18.6% more children brushed their teeth twice daily. Significant different between group (P=0.000) (2) i) (I) 98.7% (C) 95.3% 3.4% more caregivers believed primary teeth are important. Significant different between groups (P=0.021) ii) (I) 92.6% (C) 82.8% 9.8% more caregivers believed children should start brushing teeth before 3 years old Significant different between groups (P=0.009)</td>
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<td>(I)= Intervention group</td>
<td>(C)= Control group</td>
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<tr>
<td>before 3 years old</td>
<td>9.8% more caregivers believed in the fluoride toothpaste in caries prevention</td>
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<tr>
<td>iii) Believed fluoride toothpaste can prevent tooth decay</td>
<td>Significant different between groups (P=0.013)</td>
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<td>(3) Oral health knowledge</td>
<td>i) (I)83.9% (C) 61.2%</td>
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<tr>
<td>i) Knew the correct amount of toothpaste used</td>
<td>22.7% more caregivers knew the correct amount of toothpaste used.</td>
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<td>ii) Knew the cause of caries</td>
<td>Significant different between groups (P=0.000)</td>
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<tr>
<td>ii) (I)70.9% (C) 58.2%</td>
<td>12.7% more caregivers knew the cause of caries</td>
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<td></td>
<td>Significantly different between groups (P=0.001)</td>
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</table>
*Community Dentistry and Oral Epidemiology, 38:* 324-332.

<table>
<thead>
<tr>
<th>Study Design/Country</th>
<th>Patient characteristics</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Length of Follow-up</th>
<th>Outcome measures</th>
<th>Effect size</th>
<th>Level of Evidence</th>
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</thead>
<tbody>
<tr>
<td>Parallel RCT Brazil</td>
<td>- Median maternal age at child birth: 26 in intervention; 25 in Control - Mother gave birth to normal, single, full-term (≥37weeks) baby N=500</td>
<td>Educational advise: - Monthly Nutritional advise given through home visit counseling (30 mins):</td>
<td>No advise on nutrition given N= 300/199</td>
<td>4years</td>
<td>Primary: 1) Occurrence of early childhood caries (ECC) Secondary: 2) Occurrence of Severe-ECC 3) Feeding Behaviour i) Sugar introduced to children below 6 months old ii) No. of daily meals &amp; snacks at 1 year: - Less than 7 times/day</td>
<td>Primary: 1) (I)= 53.9%; (C)= 69.3% A significant decrease of 15.4% in caries occurrence A significant different between groups rr=0.78 with CI (0.65-0.93) &amp; p=0.004 Secondary: 2) (I)= 29.1%; (C)= 42.7% A significant decrease of 13.6% in occurrence in S-ECC A significant different between groups rr=0.68 with CI (0.5-0.92) &amp; p= 0.010 3) i) Sugar was introduced when child was ≤6months: (I)= 80%; (C)=90.5% A Significant decrease of 10.5% A Significant different between groups (P=0.01)</td>
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<td>No. of daily meals &amp; snacks at 1 year</td>
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<td>Less than 7 times/day = (I)= 43.3%; (C)=37.7%</td>
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<td>A significant of 5.6% more children eat more than 7 times/day</td>
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<td>A significant different between groups (p=0.035)</td>
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<td>Eat more than 8 times/day = (I)= 19.1%; (C)=31.7%</td>
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<tr>
<td>A significant of 12.6% less children eat more than 8 times/day in the (I).</td>
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<tr>
<td>A significant different between groups = (P=0.035)</td>
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(iii) Introduced high density of sugar food at 1 year

- More than 8 times/day
- Less than 7 times/day

(i) Intervention group

(C) Control group

<table>
<thead>
<tr>
<th>Study Design/Country</th>
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<th>Length of Follow-up</th>
<th>Outcome measures</th>
<th>Effect size</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlled trial</td>
<td></td>
<td>Group A: Received Dental health education (DHE) focused on diet and briefly on oral hygiene</td>
<td>No intervention</td>
<td>3 years</td>
<td>Primary: (1) Caries Prevalence</td>
<td>Primary: Caries prevalence: 4% of children developed caries in group A, and None (0%) of the children developed caries in Group B,C &amp; D while 33% of children developed caries in control by age of 3</td>
<td>1+</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>- Mean age of children (Months): 11.4 and their mother’s mean age was 29 years old.</td>
<td>Group B: Focused on Oral hygiene instruction (OHI) using children’s fluoride toothpaste and briefly on diet</td>
<td>Group C: received DHE equally balanced between Diet and OHI</td>
<td>*Group A, B &amp; C were given every 3 monthly for first 2 years → twice a year in the</td>
<td>Secondary: (1) Oral hygiene - (Optimal/Good)</td>
<td>Significant different in groups were tested by Kruskal-Wallis test with (P&lt;0.001)</td>
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<tr>
<td></td>
<td>- Mean age of Mother (Years): 29.0</td>
<td>*</td>
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<td>(2) Caries risk Behaviour: a) Frequency of sweet consumption: &gt;Once/day: b) Frequency of tooth brushing: &gt;Once/day: c) Frequency of dental visits: Every 6 months</td>
<td>Secondary: (1) (I)= 76%; (C)= 28% - 48% of children in intervention have better oral health condition than control. Significant different between groups were tested by Fisher exact test with (P=0.001).</td>
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<td></td>
<td>n=228 (Mother and child pair)</td>
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<td>(2) a) Group A: 9%; Group B: 0%; Group C: 2%; Group D: 8%; Control: 33% - There are 0-9% of children consumed sweet for more than once per day while in control there are 33%</td>
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</tbody>
</table>
Group D: received DHE as diet and OHI once a year for 3 years

DHE mainly on:
- Substitute bottle with feeder cup
- Brush child’s teeth twice a day with fluoride toothpaste
- Visit a dentist regularly

Significant different in groups were tested with Kruska-Wallis test with (P<0.001)

b) Group A: 87%; Group B: 98%; Group C: 90%; Group D: 86%
Control: 43%
- 86-98% of the children brush their teeth more than once/day while only 43% did in control.
Significant different between groups were tested with Kruska-Wallis test with (P<0.001)

c) Group A: 85%; Group B: 88%; Group C: 76%; Group D: 89%
Control: 57%
76-89% of children visit the dentist every 6 months while only 57% of the control did.
Significant different between group were tested with Kruska-Wallis test with (P<0.01).

(I)= Intervention group
(C)= Control group
<table>
<thead>
<tr>
<th>Study Design/Country</th>
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<th>Length of Follow-up</th>
<th>Outcome measures</th>
<th>Effect size</th>
<th>Level of evidence</th>
</tr>
</thead>
</table>
| Quasi-experimental comparison group
Jerusalem             | - A cohort of children aged 6-12 months N=883 | Health education (10-15mins) messages were delivered by nurses during routine health check-up Program 1: receiving both structured health education, toothbrushes and toothpaste; Program 2: receiving structured health education only Educational posters were hung in all “intervention” clinics Educational leaflets was distributed among parents. | Routine care Control 1: receiving routine care, toothbrushes and toothpaste; Control 2: received routine care only | 6 months | 1) Dietary habits 2) Tooth brushing | 3) The research failed to indicate the effect of intervention in improving the dietary habits. 4) Programme 1: Baseline= 16.4% 6 months= 74.9%; Control 1: Baseline= 13.3% 6months= 56.6% Programme 1 had shown a better improvement in tooth brushing behaviour than control: 60.4% vs 45.1%. Significant different between baseline till 6 months were test by McNemar test with (P<0.001) Significant different between (I) &(C) was tested and (p=0.022). Programme 2: Baseline= 10.9% 6 months= 52.3% Control 2: Baseline= 22.0% 6months= 51.2% Programme 2 had shown a better... | 1+ |
improvement in tooth brushing behaviour than control: 43.7% vs 32.5%
Significant different between baseline till 6 months were test by McNemar test with (P<0.001)
However, result between groups was statistically Non-significant

(I)= Intervention group
(C)= Control group
## Appendix 2

### A Summary of Table of Evidence

<table>
<thead>
<tr>
<th>Citation</th>
<th>Counselling</th>
<th>Leaflet/ Booklet</th>
<th>Others</th>
<th>Method/ Frequency of intervention</th>
<th>Location of intervention given</th>
<th>Incentive</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
| Mohebbi 2009 | 5 minutes of Oral health instructions (OHI)  
(A) Prevention on transmission of bacteria  
- Avoid sharing utensils or food  
(B) Oral Hygiene  
- Brush/ clean child’s teeth twice daily  
- Use of fluoride toothpaste  
(C) Dietary advice  
- avoid sugary snacks and drinks | Pamphlet:  
(A) Feeding habits  
- Stop nighttime feed after 1st eruption of teeth  
- Avoid sipping from bottle  
(B) Prevention on transmission of bacteria  
- Avoid sharing utensils or food  
(C) Oral Hygiene  
- Brush/ clean child’s teeth twice daily  
- Use of fluoride toothpaste  
(D) Dietary advice  
- avoid sugary snacks and drinks  
- Give water after taking medicines | Reminder calls:  
Twice at 2-month interval to remind them the OHI | One-to-one counselling once  
Telephone reminder twice at 2-month interval | Child health centres | 1++ |
<table>
<thead>
<tr>
<th>Citation</th>
<th>Education Strategy</th>
<th>Method/ Frequency of intervention</th>
<th>Location of intervention given</th>
<th>Incentive</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
| Plutzer 2008 | Nil | 1st round:  
- Oral hygiene during pregnancy and proper nutrition  
- Importance of primary teeth  
- Use of pacifiers and sleeping patterns  
2nd & 3rd round:  
- Eruption of teeth  
- Oral hygiene  
- Nutrition | Structured telephone consultation | Printed materials were mailed to the parents in 3 rounds:  
1st: After enrolled to the study  
2nd: Child is 6 months of age  
3rd: Child is 12 months of age  
Telephone consultation: when child is between 6 & 12 months of age (can be more than once)  
Total = 3 mails + ≥1 contact | N/A | √ | 1+ |
| Rong 2003 | - Oral anatomy  
- Etiology, development, prevention & treatment of dental caries & periodontal disease  
- Importance of good oral hygiene  
- Maintaining health teeth | Nil | - Teaching is aided with video, audiotape with pictures  
- Children were supervised by teacher to brush their teeth twice a day | Twice a year (for 2 years)  
Total = 4 sessions | Kindergartens | √ | 1++ |
<table>
<thead>
<tr>
<th>Citation</th>
<th>Education Strategy</th>
<th>Method/ Frequency of intervention</th>
<th>Location of intervention given</th>
<th>Incentive</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feldens 2010</td>
<td>30 minutes visit: Nutritional Advice:</td>
<td>Monthly for 6 months &amp; at 8, 10, 12 months Total= 9 visits</td>
<td>Subjects’ Home</td>
<td>1++</td>
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<td></td>
<td>- &quot;Ten steps of health feeding” (encourage breastfeeding and introduce solid food at age 6 months) - Advised not to use bottle or breastfeed as pacifiers - Avoid addition intake of sugary food or drinks</td>
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<tr>
<td></td>
<td>Counselling</td>
<td>Leaflet/ Booklet</td>
<td>Others</td>
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<td></td>
<td>NIl</td>
<td>Nil</td>
<td>Nil</td>
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<tr>
<td>Kowash 2000</td>
<td>15 minutes counselling on: Dental Health Education (DHE): (Focused on diet)</td>
<td>Tested 2 frequencies:</td>
<td>Subjects’ Home</td>
<td>1+</td>
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<tr>
<td></td>
<td>- Substitute bottle with feeder cup</td>
<td>1) Every 3 months for first 2 years ➔ twice in the 3 year 2) Once a year for 3 years Total: 3 or 10 times</td>
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<td></td>
<td>- Brush child’s teeth twice a day with fluoride toothpaste</td>
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<td>- Visit a dentist regularly</td>
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<td>Oral health instruction (OHI):</td>
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<td>- Use of fluoride toothpaste</td>
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<td>Infants’ 1st year of life:</td>
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<td>- Reduce sugar to bottle &amp; food</td>
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<td>- Avoid bottle as pacifier</td>
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<td>- Refrain sleeping with bottle (unless with water only)</td>
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<td>- Clean teeth with fluoride toothpaste when there is first eruption of teeth</td>
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<td>Infants’ 2nd year:</td>
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<td>- Introduce drinking from cup</td>
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<td></td>
<td>- Dental examination by dentist/hygienest</td>
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<td>Short leaflet</td>
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<td>- Simple message in explaining “how to keep your baby’s teeth health”</td>
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<td>Nil</td>
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<tr>
<td>Sgan-Cohen 2001</td>
<td>10-15 minutes counselling: Infants’ 1st year of life:</td>
<td>During routine child health visits Total= 6-7 times</td>
<td>Child Health Centres</td>
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<td></td>
<td>- Reduce sugar to bottle &amp; food</td>
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<td>- Avoid bottle as pacifier</td>
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<td>- Clean teeth with fluoride toothpaste when there is first eruption of teeth</td>
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<td>Infants’ 2nd year:</td>
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<tr>
<td></td>
<td>- Introduce drinking from cup</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Dental examination by dentist/hygienest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

72
Appendix 3

Methodology Checklist 2: Controlled Trials

SIGN

Study identification  (Include author, title, year of publication, journal title, pages)

Guideline topic:  Key Question No:  Reviewer:

Before completing this checklist, consider:

1. Is the paper a **randomised controlled trial** or a **controlled clinical trial**? If in doubt, check the study design algorithm available from SIGN and make sure you have the correct checklist. If it is a **controlled clinical trial** questions 1.2, 1.3, and 1.4 are not relevant, and the study cannot be rated higher than 1+

2. Is the paper relevant to key question? Analyse using PICO (Patient or Population Intervention Comparison Outcome). IF NO REJECT (give reason below). IF YES complete the checklist.

Reason for rejection: 1. Paper not relevant to key question ☐ 2. Other reason ☐ (please specify):

SECTION 1:  INTERNAL VALIDITY

<table>
<thead>
<tr>
<th>In a well conducted RCT study...</th>
<th>Does this study do it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 The study addresses an appropriate and clearly focused question.</td>
<td>Yes ☐  No ☐  Can't say ☐</td>
</tr>
<tr>
<td>1.2 The assignment of subjects to treatment groups is randomised.</td>
<td>Yes ☐  No ☐  Can't say ☐</td>
</tr>
<tr>
<td>1.3 An adequate concealment method is used.</td>
<td>Yes ☐  No ☐  Can't say ☐</td>
</tr>
<tr>
<td>1.4 Subjects and investigators are kept 'blind' about treatment allocation.</td>
<td>Yes ☐  No ☐  Can't say ☐</td>
</tr>
<tr>
<td>1.5 The treatment and control groups are similar at the start of the trial.</td>
<td>Yes ☐  No ☐  Can't say ☐</td>
</tr>
<tr>
<td>1.6 The only difference between groups is the treatment under investigation.</td>
<td>Yes ☐  No ☐  Can't say ☐</td>
</tr>
</tbody>
</table>
| 1.7 | All relevant outcomes are measured in a standard, valid and reliable way. | Yes ☐  
No ☐  
Can't say ☐ |
| 1.8 | What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed? | Yes ☐  
No ☐  
Can't say ☐ |
| 1.9 | All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis). | Yes ☐  
No ☐  
Can't say ☐  
Does not apply ☐ |
| 1.10 | Where the study is carried out at more than one site, results are comparable for all sites | Yes ☐  
No ☐  
Can't say ☐  
Does not apply ☐ |

**SECTION 2: OVERALL ASSESSMENT OF THE STUDY**

| 2.1 | How well was the study done to minimise bias?  
*Code as follows*  
High quality (++): ☐  
Acceptable (+): ☐  
Unacceptable – reject 0 ☐ |
| 2.2 | Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention? |
| 2.3 | Are the results of this study directly applicable to the patient group targeted by this guideline? |
| 2.4 | **Notes.** Summarise the authors’ conclusions. Add any comments on your own assessment of the study, and the extent to which it answers your question and mention any areas of uncertainty raised above. |
Appendix 4
Quality Assessment Checklist


<table>
<thead>
<tr>
<th>Internal Validity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 The study addresses an appropriate and clearly focused question.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.2 The assignment of subjects to treatment groups is randomised.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.3 An adequate concealment method is used.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.4 Subjects and investigators are kept ‘blind’ about treatment allocation.</td>
<td>Can’t say. (As an educational intervention, it is hard to blind the subjects, however, the examiners are kept blind)</td>
</tr>
<tr>
<td>1.5 The treatment and control groups are similar at the start of the trial.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.6 The only difference between groups is the treatment under investigation.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.7 All relevant outcomes are measured in a standard, valid and reliable way</td>
<td>Yes</td>
</tr>
<tr>
<td>1.8 What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed?</td>
<td>26.9%</td>
</tr>
<tr>
<td>1.9 All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis).</td>
<td>No</td>
</tr>
<tr>
<td>1.10 Where the study is carried out at more than one site, results are comparable for all sites</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Assessment of the Study</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 How well was the study done to minimise bias?</td>
<td>High Quality ++</td>
</tr>
<tr>
<td>Code as follows</td>
<td></td>
</tr>
<tr>
<td>2.2 Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention?</td>
<td>Yes. (Sample size: Effect size: small to medium effect, power=80%, α=0.05)</td>
</tr>
<tr>
<td>2.3 Are the results of this study directly applicable to the patient group targeted by this guideline?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

NNT was calculated to test the effectiveness of this intervention and the value obtained showed a high effectiveness especially regarding to the prevention of enamel caries. And a logistic regression was applied to the interfering factors i.e. socio-demographic and the effectiveness of the intervention was verified.

| Internal Validity |  
|------------------|------------------|
| 1.1 The study addresses an appropriate and clearly focused question. | Yes  
| 1.2 The assignment of subjects to treatment groups is randomised. | Yes  
| 1.3 An adequate concealment method is used. | Can’t say  
| 1.4 Subjects and investigators are kept ‘blind’ about treatment allocation. | No  
| 1.5 The treatment and control groups are similar at the start of the trial. | Yes  
| 1.6 The only difference between groups is the treatment under investigation. | Yes  
| 1.7 All relevant outcomes are measured in a standard, valid and reliable way | Yes  
| 1.8 What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed? | 29.4%  
| 1.9 All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis). | No  
| 1.10 Where the study is carried out at more than one site, results are comparable for all sites | Does not apply  

| Overall Assessment of the Study |  
|------------------|------------------|
| 2.1 How well was the study done to minimise bias? | Acceptable + Code as follows  
| 2.2 Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention? | Yes (Sample size: medium effect size, power 0.8, \( \alpha =0.5 \))  
| 2.3 Are the results of this study directly applicable to the patient group targeted by this guideline? | Yes  

The oral health promotion programme significantly reduce the incidence of S-ECC. But there are some limitations in the study: Although a success were shown in children of 20-month old, however, the disease process is still early at this stage and it may progress and therefore long-term effect of this intervention is not assessed. Also, because of considering the retesting of oral examination will create an unwelcome burden to the mothers, therefore this may affect the reliability of the dental examinations.

### Internal Validity

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The study addresses an appropriate and clearly focused question.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.2</td>
<td>The assignment of subjects to treatment groups is randomised.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.3</td>
<td>An adequate concealment method is used.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.4</td>
<td>Subjects and investigators are kept ‘blind’ about treatment allocation.</td>
<td>Can’t say (It is often hard to blind the subjects in an educational intervention)</td>
</tr>
<tr>
<td>1.5</td>
<td>The treatment and control groups are similar at the start of the trial.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.6</td>
<td>The only difference between groups is the treatment under investigation.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.7</td>
<td>All relevant outcomes are measured in a standard, valid and reliable way.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.8</td>
<td>What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed?</td>
<td>29%</td>
</tr>
<tr>
<td>1.9</td>
<td>All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis).</td>
<td>No</td>
</tr>
<tr>
<td>1.10</td>
<td>Where the study is carried out at more than one site, results are comparable for all sites.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Overall Assessment of the Study

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>How well was the study done to minimise bias? <em>Code as follows</em></td>
<td>1++</td>
</tr>
<tr>
<td>2.2</td>
<td>Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention?</td>
<td>Yes</td>
</tr>
<tr>
<td>2.3</td>
<td>Are the results of this study directly applicable to the patient group targeted by this guideline?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The drop-out rate of this study is high, which due to transferring to other kindergartens and absence on day of examination. However, the high attrition rate does not cause statistical significant between groups different in the baseline. The research showed an effectiveness in improving the oral health habit.
Internal Validity

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The study addresses an appropriate and clearly focused question.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.2</td>
<td>The assignment of subjects to treatment groups is randomised.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.3</td>
<td>An adequate concealment method is used.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.4</td>
<td>Subjects and investigators are kept ‘blind’ about treatment allocation.</td>
<td>No</td>
</tr>
<tr>
<td>1.5</td>
<td>The treatment and control groups are similar at the start of the trial.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.6</td>
<td>The only difference between groups is the treatment under investigation.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.7</td>
<td>All relevant outcomes are measured in a standard, valid and reliable way</td>
<td>Yes</td>
</tr>
<tr>
<td>1.8</td>
<td>What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed?</td>
<td>21/27%</td>
</tr>
<tr>
<td>1.9</td>
<td>All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis).</td>
<td>No</td>
</tr>
<tr>
<td>1.10</td>
<td>Where the study is carried out at more than one site, results are comparable for all sites</td>
<td>Does not apply</td>
</tr>
</tbody>
</table>

Overall Assessment of the Study

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>How well was the study done to minimise bias?</td>
<td>High Quality 1++</td>
</tr>
<tr>
<td></td>
<td><em>Code as follows</em></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention?</td>
<td>Yes</td>
</tr>
<tr>
<td>2.3</td>
<td>Are the results of this study directly applicable to the patient group targeted by this guideline?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The study shows that the intervention is feasible and demonstrate a long-term effectiveness in reducing caries occurrence and severity.

<table>
<thead>
<tr>
<th>Internal Validity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 The study addresses an appropriate and clearly focused question.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.2 The assignment of subjects to treatment groups is randomised.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.3 An adequate concealment method is used.</td>
<td>Can’t say</td>
</tr>
<tr>
<td>1.4 Subjects and investigators are kept ‘blind’ about treatment allocation.</td>
<td>No</td>
</tr>
<tr>
<td>1.5 The treatment and control groups are similar at the start of the trial.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.6 The only difference between groups is the treatment under investigation.</td>
<td>Yes</td>
</tr>
<tr>
<td>1.7 All relevant outcomes are measured in a standard, valid and reliable way</td>
<td>Yes</td>
</tr>
<tr>
<td>1.8 What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed?</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>1.9 All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis).</td>
<td>No</td>
</tr>
<tr>
<td>1.10 Where the study is carried out at more than one site, results are comparable for all sites</td>
<td>Does not apply</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Assessment of the Study</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 How well was the study done to minimise bias? <em>Code as follows</em></td>
<td>Medium quality with risk of bias 1-</td>
</tr>
<tr>
<td>2.2 Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention?</td>
<td>Yes</td>
</tr>
<tr>
<td>2.3 Are the results of this study directly applicable to the patient group targeted by this guideline?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The study has shown a significant reduction of caries prevalence, better oral hygiene condition and less caries risk behaviour in the intervention. However, the lack of mentioning of concealment method, the attrition rate makes the research increase in risk of bias.

<table>
<thead>
<tr>
<th>Internal Validity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 The study addresses an appropriate and clearly focused question.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>1.2 The assignment of subjects to treatment groups is randomised.</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>1.3 An adequate concealment method is used.</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>1.4 Subjects and investigators are kept ‘blind’ about treatment allocation.</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>1.5 The treatment and control groups are similar at the start of the trial.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>1.6 The only difference between groups is the treatment under investigation.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>1.7 All relevant outcomes are measured in a standard, valid and reliable way</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>1.8 What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed?</td>
<td>6.8/17.7%</td>
<td></td>
</tr>
<tr>
<td>1.9 All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis).</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>1.10 Where the study is carried out at more than one site, results are comparable for all sites</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Assessment of the Study</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 How well was the study done to minimise bias?</td>
<td>Acceptable +</td>
<td></td>
</tr>
<tr>
<td>Code as follows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention?</td>
<td>Yes (Sample size: small effect size, power= 80%, $\alpha$ 0.05)</td>
<td></td>
</tr>
<tr>
<td>2.3 Are the results of this study directly applicable to the patient group targeted by this guideline?</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

To increase in validating the response, the survey was masked by placing the dental questions together with general health questions.
### Appendix 5
A Summary of Quality Assessment- Internal Validity

<table>
<thead>
<tr>
<th>Study</th>
<th>Sign Questions</th>
<th>Focused question</th>
<th>Randomization</th>
<th>Concealment</th>
<th>Double blinding</th>
<th>Baseline measure</th>
<th>Only difference between group</th>
<th>Validity of outcome</th>
<th>Drop-out rate</th>
<th>Intention to treat</th>
<th>Compare for all sites</th>
<th>2.1*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohebbi 2009</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>26.9%</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1++</td>
</tr>
<tr>
<td>Plutzer &amp; Spencer 2008</td>
<td>Yes</td>
<td>Yes</td>
<td>Can’t say</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>29.4</td>
<td>No</td>
<td>Does not apply</td>
<td></td>
<td>1+</td>
</tr>
<tr>
<td>Rong 2003</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>29%</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>1++</td>
</tr>
<tr>
<td>Feldens 2010</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>21/27%</td>
<td>No</td>
<td>Does not apply</td>
<td></td>
<td>1++</td>
</tr>
<tr>
<td>Kowash 2000</td>
<td>Yes</td>
<td>Yes</td>
<td>Can’t say</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Not mentioned</td>
<td>No</td>
<td>Does not apply</td>
<td></td>
<td>1-</td>
</tr>
<tr>
<td>Sgan-Cohen 2001</td>
<td>Yes</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>6.8/17.7%</td>
<td>No</td>
<td>No</td>
<td></td>
<td>1+</td>
</tr>
</tbody>
</table>

*2.1* = How well was the study done to minimize bias?
## Appendix 6

### Summary of Literature Search

<table>
<thead>
<tr>
<th>Category</th>
<th>PubMed</th>
<th>Medline (OVID)</th>
<th>Cochrane Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Early childhood caries/ Dental caries</td>
<td>46179</td>
<td>37241</td>
<td>408</td>
</tr>
<tr>
<td>(2) Oral health education/ Dental education/ caries prevention</td>
<td>1652</td>
<td>58148</td>
<td>102</td>
</tr>
<tr>
<td>(3) Infants/ Preschool children</td>
<td>1333369</td>
<td>764412</td>
<td>52319</td>
</tr>
<tr>
<td>(1) AND (2) AND (3)</td>
<td>604</td>
<td>2161</td>
<td>26</td>
</tr>
<tr>
<td>Limit to Randomized controlled trial and controlled trial</td>
<td>56</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Potential articles after reviewing the title</td>
<td>14</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Further elimination after reviewing the abstracts, availability of full text</td>
<td>5</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Reviewing reference list from articles and eliminating duplicated articles</td>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>
Appendix 6A  
PRISMA 2009 Flow Diagram

Identification
- Records identified through database searching ($n = 106$)
- Additional records identified through other sources ($n = 0$)
  - Records after duplicates removed ($n = 98$)

Screening
- Records screened ($n = 29$)
  - Records excluded ($n = 69$)
    - Full-text articles excluded, with reasons ($n = 0$)

Eligibility
- Full-text articles assessed for eligibility ($n = 6$)
  - Studies included in qualitative synthesis ($n = 0$)
    - Studies included in quantitative synthesis (meta-analysis) ($n = 6$)
## Appendix 7

### Timeframe

<table>
<thead>
<tr>
<th>Stage</th>
<th>Planning</th>
<th>Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Jan</td>
<td>Feb</td>
</tr>
<tr>
<td>Set up Working group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare proposal &amp; Guideline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liaise with Dental department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek approval from department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designing working Protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designing Material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparation for teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Staffs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collection of evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate the Pilot test and make modification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation and Evaluation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
護齒小提示

寶寶出生後，家長可以開始為寶寶清潔口腔：

 água
用水擦拭寶寶的手部
用水擦拭寶寶的手部

溫馨小提示：

當家長的手指放到寶寶的嘴邊時，寶寶多半以為有奶吸，就會自然地張開口

由於初生寶寶沒有固定的作息模式，家長只需每天晚上選擇一個固定的時間為寶寶清潔口腔就可以了。

每天定時為寶寶清潔口腔，可使寶寶長大後更容易學習和適應刷牙。

飲食建議：

不限飲料的次數
在寶寶睡著時停止餵哺
不要讓寶寶養成含著奶瓶或有味道的飲品睡覺的習慣
隨著寶寶成長，在他6個月大時訓練他每天有規律地吃6至8餐
留意寶寶口腔的變化，如有需要可帶寶寶見牙醫檢查
Appendix 8B

護齙小提示②
六個月至一歲的孩子

寶寶第一顆牙齒開始長出時，家長可以：

🌟 家長應繼續早晚為寶寶抹口腔
🌟 必須每天早晚替寶寶抹已長出的牙齒
🌟 當第一顆臼齒長出後，家長可以嘗試用較柔軟的嬰兒牙刷及開水替寶寶刷牙
🌟 孩子兩歲前，家長該為寶寶選擇一支刷頭柔軟、刷頭長度比一歲半硬幣直徑短的牙刷
🌟 家長應在寶寶長出第一顆牙齒之後的6個月內帶他作第一次口腔檢查

怎樣替寶寶刷牙

🌟 幫寶寶刷牙時，可讓他坐在你的大腿上或讓他在床上，以便你看清楚寶寶的牙齒

1. 先刷全部牙齒的外側面
2. 然後刷所有牙齒的內側面
3. 最後刷全部臼齒的咀嚼面

飲食建議：

🌟 把寶寶每天所需食物（包括奶品），分成6至8餐來餵哺，兩餐之間只讓他喝白開水。
🌟 每天定時餵食寶寶
🌟 不要讓寶寶含著有奶的奶瓶就睡覺。
🌟 寶寶約9個月大就該開始改用戒奶杯，最好在寶寶14個月大前完全轉用戒奶杯進食。

內容摘自衛生署 口腔健康教育轄
詳情可參考：http://www.toothclub.gov.hk/
護齒小提示③

約一歲半的孩子

孩子約一歲半，家長可以：

1. 繼續用軟毛牙刷替寶寶清潔牙齒
2. 每天早上刷一次，晚上睡前刷一次
3. 替孩子刷牙是不需使用牙膏，可待孩子會吐水後才開始使用
4. 每隔半年到一年，帶寶寶到牙醫作定期的口腔檢查

飲食建議：

① 不要讓寶寶經常進食
② 每天定時餵哺寶寶，每天最多6至8餐。
③ 不要讓寶寶含著盛水以外的奶瓶睡覺
④ 完全轉用戒奶杯飲奶或其他飲料
⑤ 小食及飲品安排在正餐或茶點時間讓他一併進食，其餘時間只喝白開水。
護齒小提示④
2至6歲的孩子

孩子快兩歲了！家長可以：

1. 讓孩子學習自己刷牙
2. 每天早上刷一次、晚上睡前刷一次
3. 寶寶兩歲後，可選用一支刷頭長度約為兩亳米硬幣直徑的牙刷
4. 如孩子會吐水，可讓他用一顆青豆大小的含氟化物兒童牙膏刷牙
5. 家長須每晚替他補刷牙齒一次
6. 每隔半年到至一年見牙醫作定期的口腔檢查

飲食建議：

不要讓孩子含著盛有奶的奶瓶睡覺。

培養孩子定時吃喝水的習慣

家長應讓孩子用杯喝水

小食及飲品安排在正餐或茶點時間讓他一併進食，其餘時間只喝白開水。

內容摘自衛生署 口腔健康教育組
詳情可參閱：http://www.toothclub.gov.hk/
Appendix 9

“口腔護理資訊”及“護齒小提示”意见反馈

感謝您參加口腔健康教育計劃。本次評估有助我們改善程序與課程內容。您的意見是很重要的，希望您能發表意見和反饋。

甲. 以下是您對口腔教育的接受調查，請圈上適當的數目字，來代表你對該項目的意見：

<table>
<thead>
<tr>
<th>項目意見</th>
<th>很難明</th>
<th>難明</th>
<th>易明</th>
<th>很易明</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 內容能配合我照顧孩子的需要</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. 我對怎麼清潔孩子的口腔有了更清楚的認識</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. 這計劃使我更重視孩子的口腔健康</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

乙. 以下是護士接見時提供口腔護理資訊的內容，請圈上適當的數目字，來代表你對該項目的意見：

A. 容易明白程度

<table>
<thead>
<tr>
<th>項目意見</th>
<th>很難明</th>
<th>難明</th>
<th>易明</th>
<th>很易明</th>
</tr>
</thead>
<tbody>
<tr>
<td>怎樣清潔孩子的口腔</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>飲食建議(只適用於6個月以上的孩子)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. 有用程度

<table>
<thead>
<tr>
<th>項目意見</th>
<th>沒用</th>
<th>少許用</th>
<th>有用</th>
<th>極有用</th>
</tr>
</thead>
<tbody>
<tr>
<td>怎樣清潔孩子的口腔</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>飲食建議(只適用於6個月以上的孩子)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

C. 你希望能再深入講解哪一部份？(可選擇多於一項)

- 怎樣清潔孩子的口腔
- 飲食建議
- 已經很足夠
- 其他 (請寫上意見)
其他意見：

______________________________________________
______________________________________________
______________________________________________

丙．請圈上適當的數目字來代表你對以下項目的意見：

A．輔助教材—“護齒小提示”單張

1. 怎樣清潔孩子的口腔

<table>
<thead>
<tr>
<th></th>
<th>非不滿意</th>
<th>不滿意</th>
<th>滿意</th>
<th>非滿意</th>
</tr>
</thead>
<tbody>
<tr>
<td>是否吸引</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>是否清晰易明</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>是否實用</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

不滿意的原因：_______________________________

2. 飲食建議

<table>
<thead>
<tr>
<th></th>
<th>非不滿意</th>
<th>不滿意</th>
<th>滿意</th>
<th>非滿意</th>
</tr>
</thead>
<tbody>
<tr>
<td>是否吸引</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>是否清晰易明</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>是否實用</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

不滿意的原因：_______________________________

其他建議：

______________________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________
受訪者資料:

年齡：
- □ 30 以下
- □ 30 – 39
- □ 40 – 49
- □ 50 – 59
- □ 60 或以上

教育程度：
- □ 小學以下
- □ 小學
- □ 中學
- □ 大學或以上

工作狀況：
- □ 全職工作
- □ 兼職工作
- □ 家庭主婦

婚姻狀況：
- □ 未婚
- □ 已婚
- □ 離婚
- □ 配偶已離世

如有子女：

子女數目：
- □ 1
- □ 2
- □ 3
- □ 4 或以上

子女年紀：
- □ 1 歲以下
- □ 1 – 2 歲
- □ 3 – 4 歲
- □ 5 歲或以上

(可選擇多於一項)

多謝你的參與和寶貴意見！
Appendix 10

“2歲孩子的口腔健康”問卷調查

甲、以下是照顧者對孩子口腔清潔的認識與態度問題:

1. 你有多常帶孩子見牙醫作口腔檢查？
   (請在‘□’畫上√號)

   如有，次數為:
   一次 .......................................................... □
   二次 .......................................................... □
   三次 .......................................................... □
   三次以上 ...................................................... □
   從來沒有....................................................... □

2. 如第一題的答案為從來沒有，是什麼原因？

   孩子還小，不需要........................................... □
   費用昂貴...................................................... □
   覺得孩子的牙齒沒有問題.............................. □
   其他 (請註明): ________________________________

3. 你為何帶孩子見牙醫？

   牙齒、牙肉或口腔有不適或痛 ........................... □
   例行檢查 ................................................... □
   不知道/忘記了................................................ □
以下問題請選擇‘是’、‘否’或‘不知道’：

4. 牙齒是身體重要的一部份……………………………………. □ □ □
5. 孩子還沒出牙，所以不需要清潔口腔…………………………. □ □ □
6. 每天清潔牙齒可以預防蛀牙……………………………………. □ □ □
7. 定期的牙科檢查可以保持牙齒的健康…………………………. □ □ □
8. 頻密進食是不會引致蛀牙的……………………………………. □ □ □
9. 含氟化物的牙膏有助牙齒健康………………………………… □ □ □

乙、以下是關於孩子口腔清潔習慣的問題：

1. 你孩子的刷牙習慣為：
   從不刷牙……………………………………………………. □
   一個月數次 (2 至 3 次) …………………………………… □
   一個星期一次…………………………………………….. □
   一個星期數次 (2 至 6 次) …………………………….. □
   每天一次 ………………………………………………….. □
   每天二次或以上 ……………………………………….. □

2. 你有沒有用以下輔助工具為孩子清潔牙齦或牙肉？
   牙刷 ………………………………………………………. □
   牙籤 ………………………………………………………. □
   牙線 ………………………………………………………. □
   其他 ………………………………………………………. □

3. 清潔牙齒時，有沒有使用牙膏？
   有 ………………………………………………………. □
   沒有 …………………………………………………… □
4. 你的孩子有多常進食以下種類的食物 (包括小量進食)?

<table>
<thead>
<tr>
<th></th>
<th>每天</th>
<th>每次</th>
<th>偶爾</th>
<th>一次</th>
<th>一個禮拜</th>
<th>一個月</th>
<th>從不</th>
</tr>
</thead>
<tbody>
<tr>
<td>水果</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>餅乾、麵包、蛋糕、批等</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>汽水、果汁</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>果醬、蜂蜜</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>香口膠（含糖）</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>糖果</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>含糖分的飲料（檸檬茶、豆乳、紙包飲品等）</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

受訪者資料：

年齡：□ 30 以下  □ 30 – 39  □ 40 – 49  □ 50 – 59  □ 60 或以上

教育程度：□ 小學以下  □ 小學  □ 中學  □ 大學或以上

工作狀況：□ 全職工作  □ 兼職工作  □ 家庭主婦

婚姻狀況：□ 未婚  □ 已婚  □ 離婚  □ 配偶已離世

如有子女：

子女數目：□ 1  □ 2  □ 3  □ 4 或以上

子女年紀：□ 1 歲或以下  □ 2-3 歲  □ 4-5 歲  □ 5 歲或以上

（可選擇多於一項）

多謝你的參與和寶貴意見
## Appendix 11

### Estimate Cost for Pilot test

<table>
<thead>
<tr>
<th>Item Cost</th>
<th>Description</th>
<th>Unit Price (HK$)</th>
<th>Calculation</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Dental Officer (SDO), Dental Officer (DO) for OHE training</td>
<td>44 weeks/ year; 44 working hr/ week</td>
<td>SDO¹: $4,807.5/day $546.3 /hour DO²: $4,322/ day $491.1/ hour</td>
<td>($546.3 + $491.1) x 4</td>
<td>$4,149.6</td>
</tr>
<tr>
<td>RN for the OHE training</td>
<td>Half day course</td>
<td>RN³: $1873.6/ day $223.6/ hour</td>
<td>$223.6 x 4 x 3 RNs</td>
<td>$2683.2</td>
</tr>
<tr>
<td>Course hand-out</td>
<td>Printer owned by department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venue, Computer, projector</td>
<td>Department owned</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome evaluation: Dental check-up</td>
<td>500 participants</td>
<td>Check-up cost around $96</td>
<td>$96 x 500</td>
<td>$48,000</td>
</tr>
</tbody>
</table>

$\text{Total Cost} = 4,149.6 + 2,683.2 + 0 + 48,000 = 54,832.8$

* Based on government “Master Pay Scale” (1 April 2013)

1 Maximum cost of Senior Dental Officer referenced from government salary scale (2013)
2 Maximum cost of Dental Officer referenced from government salary scale (2013)
3 Maximum cost of Senior Registered Nurse referenced from government salary scale (2013)
### Appendix 12

**Estimate Cost of Innovation Programme**

<table>
<thead>
<tr>
<th>Item Cost</th>
<th>Description</th>
<th>Unit Price (HK$)</th>
<th>Calculation</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Dental Officer (SDO), Dental Officer (DO) for OHE training</td>
<td>44 weeks/ year; 44 working hr/ week</td>
<td>SDO¹: $4,807.5/day $546.3 /hour</td>
<td>($546.3 + $491.1) x 4</td>
<td>$4,149.6</td>
</tr>
<tr>
<td></td>
<td>*Calculate at maximum salary</td>
<td>DO²: $4,322/ day $491.1/ hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN for the OHE training</td>
<td>Half day course</td>
<td>RN³: $1873.6/ day $223.6/ hour</td>
<td>$894.4 x 28 RNs</td>
<td>$25,043.2</td>
</tr>
<tr>
<td>Course Hand-outs</td>
<td>Printer owned by department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venue, Computer, projector</td>
<td>Department owned</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recording machine, and DVDs</td>
<td>Machine: Department owned</td>
<td>$2 x 30</td>
<td></td>
<td>$60</td>
</tr>
<tr>
<td></td>
<td>Recording Tape x 1 and DVDs x 30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip Sheets</td>
<td>On government printing service</td>
<td>$0.8/sheet</td>
<td></td>
<td>$182,400</td>
</tr>
</tbody>
</table>

**Total** $29,252.8

Total programme cost (included Pilot test) = $84,085.6

* Based on government “Master Pay Scale” (1 April 2013)

1 Maximum cost of Senior Dental Officer referenced from government salary scale (2013)

2 Maximum cost of Dental Officer referenced from government salary scale (2013)

3 Maximum cost of Senior Registered Nurse referenced from government salary scale (2013)
## Appendix 13

### Estimate Cost Saving

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Calculation</th>
<th>Cost (HK$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated children with dental caries at 5-year old</td>
<td>57,774 children born in 2013, 49.4% had their tooth caries un-treat at 5-year old^</td>
<td>57,774 x 49.4%</td>
<td>28,540 (children)</td>
</tr>
<tr>
<td>Estimated dental treatment cost</td>
<td>$700 / service</td>
<td>28,540 x $700</td>
<td>$19,978,000</td>
</tr>
<tr>
<td>Number of children will register at MCHC</td>
<td>90% of children will register in MCHC</td>
<td>28540 x 90%</td>
<td>25,686 (children)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Calculation</th>
<th>Estimate Cost Saved</th>
<th>Cost-benefit ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated benefit from OHE programme</td>
<td>Assuming 15% of the children benefit from the OHE Programme and develop no caries</td>
<td>(25,686 x 0.15 x 700) - $84,085.6</td>
<td>$2,612,944.4</td>
<td>1:31</td>
</tr>
</tbody>
</table>

# Family Health Service database

^ Department of Health, Oral Heal Survey (2011)

‡ Reference taken from The Prince Philip Dental Hospital’s schedule of fees for private patients (Medium cost used)
## SIGN GRADING SYSTEM 1999 – 2012

### LEVELS OF EVIDENCE

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1++</td>
<td>High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias</td>
</tr>
<tr>
<td>1+</td>
<td>Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias</td>
</tr>
<tr>
<td>1-</td>
<td>Meta-analyses, systematic reviews, or RCTs with a high risk of bias</td>
</tr>
<tr>
<td>2++</td>
<td>High quality systematic reviews of case control or cohort or studies</td>
</tr>
<tr>
<td></td>
<td>High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal</td>
</tr>
<tr>
<td>2+</td>
<td>Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal</td>
</tr>
<tr>
<td>2-</td>
<td>Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal</td>
</tr>
<tr>
<td>3</td>
<td>Non-analytic studies, e.g. case reports, case series</td>
</tr>
<tr>
<td>4</td>
<td>Expert opinion</td>
</tr>
</tbody>
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### GRADES OF RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or</td>
</tr>
<tr>
<td></td>
<td>A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results</td>
</tr>
<tr>
<td>B</td>
<td>A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; or</td>
</tr>
<tr>
<td></td>
<td>Extrapolated evidence from studies rated as 1++ or 1+</td>
</tr>
<tr>
<td>C</td>
<td>A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; or</td>
</tr>
<tr>
<td></td>
<td>Extrapolated evidence from studies rated as 2++</td>
</tr>
<tr>
<td>D</td>
<td>Evidence level 3 or 4; or</td>
</tr>
<tr>
<td></td>
<td>Extrapolated evidence from studies rated as 2+</td>
</tr>
</tbody>
</table>

**Good practice points**

- Recommended best practice based on the clinical experience of the guideline development group
Appendix 15

Recommendations

Recommendation 1.0- Frequencies of the oral health education (OHE) programme

The regularity of the OHE is suggested to be delivered in multiple sessions.

The topics in OHE offer parents or caregivers information and support that is relevant to their child’s oral development (Plutzer and Spencer, 2008 [1+]). The frequencies of OHE varies in different reviewed studies, however, a study by Kowash et al., (2000) [1+] shows no differences in caries increment between 3 and 10 OHE contacts. To achieve a long-term effect in preventing nursing caries, the solution would seem to be initiating the OHE before the eruption of primary teeth (Kowash el al., 2000 [1-]). (Grade A)

In order for the oral health education to be introduced into the integrated child health programme, it was decided to divide the OHE into 4 parts. Part 1, given when children is one month old; Part 2, given when child is 4 months old; Part 3 given when child reaches 1 years old and Part 4 will be given when the child is 18 months old.
**Recommendation 2.0- Etiology of Tooth Decay**

A brief introduction on how dental caries occur and how dental plaque is an important factor in causing caries.

The etiology and early onset of dental caries require its attention and to be provided along with general health service (Mohebbi et al., 2009 [1++]); (Rong et al., 2003 [1++]). (Grade A)

By understanding the etiology of dental caries, will have a direct influence on caregivers’ understanding in the later recommendations.

**Recommendation 3.0 - Oral hygiene practice**

3.1: **Toothbrushing practice**

3.1.1: Start to brush baby’s teeth with a soft baby brush as soon as they appear in the mouth.

Most of the studies had include toothbrushing twice daily in the OHE
programme (Mohebbi et al., 2009 [1++]; Plutzer & Spencer, 2008 [1+]; Rong et al., 2003 [1++]; Kowash et al., 2000 [1+]; Sgan-Cohen et al., 2001 [1+]). Although the reviewed studies did not state the importance of toothbrushing, a study by Gibson & Williams, (1999) stated that multiple studies have shown that toothbrushing can significantly reduce risk of caries. A national diet and nutrition survey shown that children who brush teeth twice daily had significant less caries compared to those who brushed less frequently. *(Grade A)*

3.1.2: *Parents or caregivers should help or assist in brushing their child’s teeth.*

If tooth cleaning is not performed properly, bacteria in dental plaque will continue to grow and hence causing tooth decay (Gibson & Williams, 1999). Most children are incapable in brushing their own teeth, parents are encouraged in providing assistance (Kowash et al., 2000 [1+]) *(Grade B)*

3.2: *Use of Fluoride Toothpaste*

3.2: *ToothBrushing should be done with use of pea-sized fluoridated children*
Fluoride toothpaste has been commonly used for over 40 years, it is well known to be effective in preventing dental decay. A systematic review with 74 papers provided strong evidence that a reduction in caries increment is significantly associated with the regular use of fluoride toothpaste (Marinho, Higgins, Logan & Sheiham, 2003). Five out of six studies have emphasized the use of fluoride toothpaste in their intervention (Mohebhi et al., 2009 [1++]; Plutzer & Spencer, 2007 [1+]; Rong et al., 2003 [1++]; Kowash et al., 2000 [1++]; Sgan-Cohen et al., 2001 [1+]). (Grade A)

**Recommendation 4.0- Feeding Habit & Dietary Habit**

**Recommendation 4.1- Feeding Habit**

4.1.1: Do not let children sleep with bottle that filled with milk or sugary drinks.

4.1.2: Do not give Sugary drinks in bottle; advise to drink from a cup starting from seven months old and stop drinking from feeding bottle by eighteen months old.
Giving bottles when children go to bed will cause the teeth to have prolonged contact with milk and causing the acid attack the teeth for a prolonged period of time. Studies have found that caries are positively associated with night-time bottle feed (Azevedo, Bezerra & Toledo, 2005; Almushayt, Sharaf, Meligy & Tallab, 2009). Mohebbi et al., (2009) [1++], Plutzer & Spencer, (2007) [1+] and Sgan-Cohen et al., (2001) [1+] have included this recommendation in their OHE programme. (Grade A) Hence, the introduction of cup feed is important in reducing the risk of nursing bottle decay and this recommendation was included in Mohebbi et al.’s, (2009) [1++] and Sgan-Cohen et al.’s, (2001) [1+] study. (Grade B)

**Recommendation 4.2- Dietary Habit**

4.2.1: Caregiver should avoid to give snacks frequently.

Each time the child was fed (with sugary snacks or carbohydrate-containing snacks), it will act with the plaque on the teeth and start to produce acid. Although saliva can help to neutralize the acid, but this process takes time. If the child were fed frequently, the acid will be

(Grade A)

4.2.2 Caregiver should refrain or limit children's consumption of sugar-containing food or drinks

Consumption of food with high sugar density and frequent intake of meals and snacks are variables that are strongly associated with childhood caries. When sugar consumption practice are established in early infancy period, it will tends to maintain through the first year of life (Feldens et al., 2010 [1++]). The result in Kowash et al.’s study (2000) [1+] showed success in preventing caries in group with OHE on diet. (Mohebbi et la., 2009 [1++]; Plutzer & Spencer, 2007 [1+]; Feldens et al., 2010 [1++])(Grade A)
**Recommendation 5.0- Regular Dental Check-up**

*Visit a dentist every six months for a dental check-up.*

Kowash et al., 2000 [1+] and Sgan-Cohen et al., 2001 [1+] have include regular dental check-up in their OHE programme. Significant higher level of dental caries (33%) were found in children with pooper contact with dental professionals (Kowash et al., 2000). If tooth decay can be identified early, preventive treatment such as fissure sealants can be used (Tooth decay, n.d., para. 9). Besides, regular check-up allows dentist to assess individual’s risk on oral health problems, give appropriate advises as well as monitoring the effectiveness of the oral health behavior. *(Grade B)*
Appendix 16
“Oral Health Education programme Refresher Course” Evaluation Form

<table>
<thead>
<tr>
<th>Staff Evaluation Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>The purpose of this evaluation can help us to improve the Oral Health Education programme Refresher Course. Your opinions are important to use, please do not hesitate to give comments, concerns or tell us the difficulties that you have encountered during the pilot:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) The purpose of the innovation is clearly stated</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2) The time application of the introduction is appropriate</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>3) Information on oral anatomy is appropriate</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4) Information on how to clean baby’s mouth is appropriate</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Information on dietary habit is appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Information on the pathophysiology of early childhood caries is appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) The programme detail explanation is appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) I have confidence in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Others:
<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>delivering the OHE to clients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) Overall, I have satisfy with the OHE programme refresher course</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly disagree</td>
</tr>
<tr>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) Other comment(s) or concern(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-Thank you -
## Appendix 17

**Staff Evaluation Form**

The purpose of this evaluation can help us to improve the Oral health Education (OHE) programme. Your opinions are important to us, please do not hesitate to give comments, concerns or tell us the difficulties that you have encountered during the pilot:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td><strong>The tip sheets are useful in assisting me to give education to clients</strong></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2</strong></td>
<td><strong>The OHE programme increases my workload significantly</strong></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>I have confidence in delivering the OHE</strong></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td><strong>Overall, I have satisfy with the OHE programme</strong></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Others:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5</strong></td>
<td><strong>Difficulties in answering the FAQ arising by parents/caregivers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6</strong></td>
<td><strong>Other comment(s) or concern(s)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-Thank you-
Appendix 18
Staff Evaluation Form

The purpose of this evaluation can help us to improve the Oral health Education (OHE) programme. Your opinions are important to use, please do not hesitate to give comments, concerns or tell us the difficulties that you have encountered during the pilot:

1) The DVD used in staff training is useful
   - Strongly Agree  - Agree  - Disagree  - Strongly disagree
   Others:

2) The tip sheets are useful in assisting me to give education to clients
   - Strongly Agree  - Agree  - Disagree  - Strongly disagree

3) The OHE programme increases my workload significantly
   - Strongly Agree  - Agree  - Disagree  - Strongly disagree
   Others:

4) I have confidence in delivering the OHE
   - Strongly Agree  - Agree  - Disagree  - Strongly disagree
   Others:

5) Overall, I have satisfy with the OHE programme
   - Strongly Agree  - Agree  - Disagree  - Strongly disagree
   Others:

6) Difficulties in answering the FAQ arising by parents/caregivers

7) Other comment(s) or concern(s)

-Thank you-