



**MINISTRY OF HEALTH MALAYSIA
ORAL HEALTH PROGRAMME**

QUICK REFERENCE FOR HEALTHCARE PROVIDERS

MANAGEMENT OF EARLY CHILDHOOD CARIES (3RD EDITION)



KEY MESSAGES

- 1. Definition of Early Childhood Caries (ECC) is the presence of a primary tooth with one or more carious (non-cavitated or cavitated lesions), missing (due to caries), or filled surfaces in a child under the age of six years (72 months).
- 2. In general, the common risk factors for ECC are feeding practices, consumption of dietary sugars, presence of certain oral microbiome, low birth weight, late start of toothbrushing, lack of supervised toothbrushing, socioeconomic and family background factors such as low parental education, unemployment, low income and single parent household.
- 3. Diagnosis of ECC is by visual examination, radiographic examination and International Caries Detection and Assessment System (ICDAS).
- 4. Prevention of ECC is by diet advice, plaque control, oral health education, interdisciplinary cooperation in preventive oral hygiene programme, motivational interviewing, anticipatory guidance, caries risk assessment, water fluoridation and use of non-fluoride agents.
- 5. Clinically, ECC can be prevented by the use of topical fluoride and fissure sealant.
- 6. Non-invasive treatment modalities include non-fluoride remineralising agents, silver diamine fluoride (SDF), fissure sealant, resin infiltration and sealing with composite resin.
- 7. Invasive treatment modalities include selective removal of caries, restoring with direct restorations with materials such as composite resin, resin-modified glass ionomer cement (RMGIC) and compomer or with indirect restorations such as stainless-steel crown (SSC).
- 8. Vital pulp therapy includes indirect pulp capping and pulpotomy.
- 9. Non-vital pulp therapy includes pulpectomy and Lesion Sterilisation and Tissue Repair (LSTR).
- 10. Extraction of primary teeth is one of the treatment options and placement of space maintainer can be considered to minimize the effect of space loss and reduction in arch perimeter.
- 11. Sedation and general anaesthesia are pharmacological treatment options for ECC.
- 12. Follow-up should be done according to caries risk assessment (CRA).

CLINICAL PRESENTATION

- Plaque accumulation at the gingival margins of smooth surfaces of teeth
- Decalcified white or brown spots beneath the plaque
- Brown or white spots progress to cavitated lesions
- Lesions can progress rapidly to complete destruction of the crown
- Maxillary primary incisors are the first to be affected, followed by the sequence of the eruption of the primary teeth with the exception of the mandibular incisors

EXAMINATION AND DIAGNOSIS

History Taking	<ul style="list-style-type: none">• Patient's complaint or parent's concern.• Medical history• Dental history• Family history• Social history• Oral hygiene practice / dietary / feeding practices
Visual Examination	For the diagnosis of initial occlusal caries, advanced occlusal caries and advanced proximal caries
Radiographic Examination	Bitewing for the diagnosis of initial proximal caries
ICDAS	A visual scoring system for caries diagnosis

PREVENTION

Diet Advice		<ul style="list-style-type: none"> • Advice on diet should be provided to pregnant women, new mothers and other primary caregivers in preventing ECC • Interdisciplinary approaches by healthcare professionals should be practised for formula feeding and bottle cessation
Plaque Control	Mechanical	<ul style="list-style-type: none"> • Commences on eruption of primary teeth • Performed with electric or manual toothbrushes • Twice daily including last thing at night • Age-appropriate amount of toothpaste containing 1000-1500 ppm fluoride • Toothpaste should be spit out without rinsing • Supervised by adult until age of seven
	Chemical	<ul style="list-style-type: none"> • As an adjunct to mechanical plaque control (e.g. chlorhexidine mouth wash, xylitol and triclosan varnish)
Oral Health Education		<ul style="list-style-type: none"> • Provided to expectant mothers, new mothers and caregivers • Social stories as an adjunct in promoting oral health-related behaviours among young children with special healthcare needs • Motivational interviewing should be conducted on parents of children with high risk for ECC by trained oral health professionals • Anticipatory guidance should be given to all parents and caregivers of children as early as after birth
Caries Risk Assessment		<ul style="list-style-type: none"> • Should be done for children aged six years old and below
Interdisciplinary Cooperation		<ul style="list-style-type: none"> • Should be implemented among paediatric cardiologist, paediatrician, paediatric dental specialist and dentist to prevent ECC in children with congenital heart disease
Topical Fluoride		<ul style="list-style-type: none"> • Diflouroasilane (0.9%) three monthly or sodium fluoride varnish (5%) six monthly application should be used in children under the age of six
Fissure Sealant		<p>Should be considered amongst patients with ECC based on:</p> <ul style="list-style-type: none"> • caries risk • plaque control • ability to isolate tooth effectively • patient cooperation

TREATMENT MODALITIES

Non-Invasive Methods		<ul style="list-style-type: none">• SDF may be used to control caries progression• Fluoride varnish should be applied according to CRA• Fissure sealant should be used in primary molars with non-cavitated occlusal lesions• Resin infiltration may be used on non-cavitated carious lesions• Sealing with composite resin may be considered for cavitated lesions limited to 1.5 mm in diameter and outer half of the dentine in primary molars
Invasive Methods	Dental Caries Removal Technique	<ul style="list-style-type: none">• Selective removal of caries may be the preferred approach for managing deep caries lesions in vital primary teeth
	Vital Pulp Therapy	<ul style="list-style-type: none">• Indirect pulp capping and pulpotomy should be considered for deeply carious primary teeth with normal pulp or reversible pulpitis• For indirect pulp capping, agents that may be used are Biodentine, calcium hydroxide, Theracal LC, Dycal, bonding agent liners, MTA, GIC and RMGIC• For pulpotomy:<ul style="list-style-type: none">○ MTA and 1:5 diluted formocresol should be used○ Biodentine and ferric sulphate may be considered○ Calcium hydroxide should not be used
	Non-Vital Pulp Therapy	<ul style="list-style-type: none">• Pulpectomy and LSTR may be considered when pre-operative root resorption is absent in teeth with irreversible pulpitis or necrotic pulp• Endoflas, zinc oxide-eugenol and calcium hydroxide plus iodoform may be considered as pulpectomy fillers• LSTR may be considered when pre-operative root resorption is present
Restorations	Direct	<ul style="list-style-type: none">• RMGIC, composite resin and compomer may be used for Class I and II cavities• Atraumatic Restorative Treatment with high-viscosity GIC may be used in Class I cavities when patient cooperation or treatment resources are limited
	Indirect	<ul style="list-style-type: none">• For multi-surface cavities and following pulpal treatment, preformed crowns should be considered over direct fillings.• Hall Technique may be considered for advanced proximal caries in primary molars
Extraction		<p>The decision to extract should only be made after considering the factors below:</p> <ul style="list-style-type: none">• General factors:<ul style="list-style-type: none">○ Patient's cooperation○ Medical condition○ Dental infection - may increase patient's morbidity• Local factors:<ul style="list-style-type: none">○ Restorability○ Extent of caries which may involve the pulp and roots <p>When there is a potential for malocclusion in the developing dentition. Extractions may be considered may be considered</p>

TREATMENT MODALITIES

Space Maintainer	<ul style="list-style-type: none"> May be considered in cases with premature extraction of primary tooth
Conscious Sedation	<ul style="list-style-type: none"> Criteria for conscious sedation should be followed Oral Midazolam may be considered in conscious sedation for the management of patients with ECC
General Anaesthesia	<ul style="list-style-type: none"> Comprehensive dental treatment (CDT) under General Anaesthesia should be considered as one of the options in rehabilitation treatment for children with ECC

CARIES-RISK ASSESSMENT FORM FOR 0-5 YEARS OLD

Factors	High risk	Moderate risk	Low risk
Risk factors, social/behavioral/medical			
Mother/primary caregiver has active dental caries	Yes		
Parent/caregiver has life-time of poverty, low health literacy	Yes		
Child has frequent exposure (>3 times/day) between-meal sugar-containing snacks or beverages per day	Yes		
Child uses bottle or non-spill cup containing natural or added sugar frequently, between meals and/or at bedtime	Yes		
Child is a recent immigrant		Yes	
Child has special health care needs ^a		Yes	
Risk factors, clinical			
Child has visible plaque on teeth	Yes		
Child presents with dental enamel defects	Yes		
Protective factors			
Child receives optimally-fluoridated drinking water or fluoride supplements			Yes
Child has teeth brushed daily with fluoridated toothpaste			Yes
Child receives topical fluoride from health professional			Yes
Child has dental home/regular dental care			Yes
Disease indicators^β			
Child has non-cavitated (incipient/white spot) caries lesions	Yes		
Child has visible caries lesions	Yes		
Child has recent restorations or missing teeth due to caries	Yes		

CARIES MANAGEMENT PATHWAYS FOR 0-5 YEARS OLD

Risk category	Diagnostics	Preventive interventions			Restorative interventions
		Fluoride	Dietary counseling	Sealants	
Low risk	<ul style="list-style-type: none"> Recall every six to 12 months Radiographs every 12 to 24 months 	<ul style="list-style-type: none"> Drink optimally-fluoridated water Twice daily brushing with fluoridated toothpaste 	Yes	Yes	<ul style="list-style-type: none"> Surveillance
Moderate risk	<ul style="list-style-type: none"> Recall every six months 	<ul style="list-style-type: none"> Drink optimally-fluoridated water (alternatively, take 	Yes	Yes	<ul style="list-style-type: none"> Active surveillance of non-cavitated

Risk category	Diagnostics	Preventive interventions			Restorative interventions
		Fluoride	Dietary counseling	Sealants	
	- Radiographs every six to 12 months	fluoride supplements with fluoride-deficient water supplies) - Twice daily brushing with fluoridated toothpaste - Professional topical treatment every six months			(white spot) caries lesions - Restore cavitated or enlarging caries lesions
High risk	- Recall every three months - Radiographs every six months	- Drink optimally-fluoridated water (alternatively, take fluoride supplements with fluoride-deficient water supplies) - Twice daily brushing with fluoridated toothpaste - Professional topical treatment every three months - Silver diamine fluoride on cavitated lesions	Yes	Yes	- Active surveillance of non-cavitated (white spot) caries lesions - Restore cavitated or enlarging caries lesions - Interim therapeutic restorations (ITR) may be used until permanent restorations can be placed

REFERRAL

Consideration for referral of an ECC case to paediatric dental specialist should be taken:

- after failure to provide care using non pharmacological behaviour technique
- due to the medical status of the child patient based on complexity of the treatment

FOLLOW-UP

Patients with ECC should be followed up every:

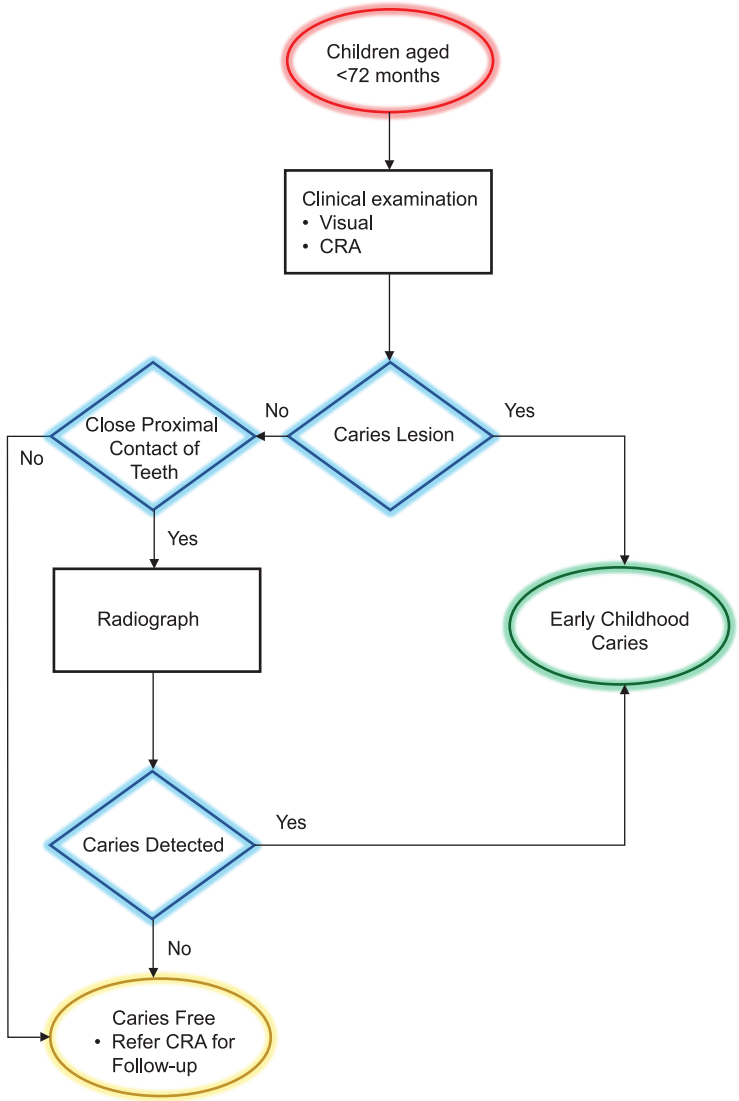
- 3 monthly for high caries risk
- 6 monthly for moderate risk
- 6 to 12 monthly for low caries risk

This Quick Reference provides key messages & a summary of the main recommendations in the Clinical Practice Guidelines (CPG) Management of Early Childhood Caries (Third Edition)

Details of the evidence supporting these recommendations can be found in the above CPG, available on the following websites: Ministry of Health Malaysia: www.moh.gov.my

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ALGORITHM 1: DIAGNOSIS OF EARLY CHILDHOOD CARIES



ALGORITHM 2: MANAGEMENT OF EARLY CHILDHOOD CARIES

