Clinical Guideline 18 - Version 3

Valid to: October 2020

dental health services victoria
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Treatment planning for children managed under dental general anaesthesia

Purpose

This clinical guideline has been updated following an analysis of DHSV service data for children and adolescents 0-16 years treated under GA over a four year period (2012 to 2016) providing an insight into GA activity across the public oral health sector in Victoria. Noting the public sector constitutes almost half of the potentially preventable dental hospitalisations of children in Victoria, the following recommendations aim to improve the quality and longevity of treatment provided for those undergoing Dental General Anaesthesia (DGA) treatment across DHSV.

Rationale

At a time when public health resources are limited, strategies need to be developed to focus on high caries-risk groups and best practice principles of care and demand management, to better utilise limited health resources. In terms of restorative treatment of dental caries under GA, the expense and inherent risks associated with having a GA, dictates an approach that ensures longevity and minimises the risk of retreatment or further treatment and therefore the possible need for a subsequent GA.

Guideline

Treatment planning

A contributory factor to repeat GA is poor treatment planning. Comprehensive treatment planning aims at ensuring that the most appropriate and long lasting dental treatment required is carried out under a single GA. It is expected that all teeth will be treated under the GA; including any preventative services such as topical fluoride and fissure sealing. Clinical treatment MUST NOT be left for future visits after the GA as an outpatient using local anaesthetic. This has been shown to result in a high rate of repeat GAs. A primary tooth restored under GA should be expected to exfoliate naturally without failure

Treatment of caries should meet the needs of each particular patient, based on a caries-risk assessment. The vast majority of children requiring a GA for dental treatment are classified as **High Risk**. Therefore, restorations placed in children under GA need to have different objectives to those in a low caries-risk child.

• Emergency extractions
o If an urgent GA is indicated for emergency extractions, unrestorable asymptomatic teeth should be removed in addition to those causing pain or sepsis, i.e. an aggressive planning of extractions, likely to reduce the need for repeat GA

• Restorative treatment
o Restorative treatment provided under GA must be more durable than that provided under other circumstances, particularly in very young children. The most predictably successful restorations should be provided
o Restoration of teeth with amalgam, resin composites, or glass ionomer cement (GIC) restorative materials should be reserved for small single surface restorations in primary molars, where expected exfoliation of the tooth is within 3 years
o The use of stainless steel crowns (SSC) and pulpotomies should be encouraged and be more widely used for the restoration of extensive or multi-surface (2 or more) carious lesions in primary molars. SSC is mandatory after a primary tooth pulpotomy
o SSC are the most predictable and durable restorations for anything but the smallest of carious lesions in primary molars

O Rubber dam is mandatory for all endodontic procedures. It should also be used when placing restorations wherever possible
o Local anaesthetic should be utilised in conjunction with all extractions under GA, observing maximum safe dosage based on body weight and after consultation with the anaesthetist
o Treatment plans should aggressively resolve the presenting complaint
o Treatment alternatives must produce predictable outcomes
o Heroic, but unrealistic, treatment should not be undertaken, especially at the request of the patient's carer
o Primary tooth pulpectomies should not be considered
o Teeth with doubtful prognoses should be extracted

• Preventive advice
o Parents of children who require the treatment of extensive disease under GA are classified as High Risk and need further preventive advice, including at a minimum 12 monthly recall. The referring clinician is responsible for appropriate follow-up

Restorative Treatment Options
Stainless Steel Crowns
SSC are relatively inexpensive, subject to minimal technique sensitivity during placement, and offer the advantage of full coronal coverage. They are the most durable restorations for the primary dentition with survival times greater than 40 months.

Amalgam Restorations
The success rate for aproximal amalgam restorations in primary molars has been reported at 70% to 80%. For proximal lesions, amalgam may be used for two-surface preparations that do not extend beyond the line angle, but this recommendation is not appropriate for restoring first primary molars in children 4 years of age and younger. Notably the use of Amalgam has significantly diminished with the advent of bonded materials, and it's use is being phased out.

Resin Composites
Evaluation of posterior resin composite restorations in the primary dentition has shown lower success rates, compared to stainless steel crowns, mainly due to micro-leakage, bond failure, and recurrent caries.
Resin composites can be utilized effectively for:
• Ultraconservative sealed restorations / preventative resin restorations
• 'Small' aproximal restorations requiring a slot preparation only
• Small supragingival single surface cervical or buccal restorations
• Incisal angle restorations

Resin composites are **not** recommended in:
• Permanent teeth with heavy occlusal stress
• Sites that cannot be properly isolated
• Patients who are allergic or sensitive to resin-based materials
• High caries-risk patients who have multiple caries and/or tooth demineralization, who exhibit poor oral hygiene, and when adequate maintenance is considered unlikely.

Glass Ionomer Cement
Because of their lack of strength, GIC has shown a significantly higher number of failures than both resin composite and Stainless Steel Crowns. GIC is noted to be unsuitable for multi surface restorations and is not recommended for use in load bearing areas that would occur in a significant proportion of posterior tooth restorations. Extensive caries in asymptomatic primary molars necessitates restoration with SSC.

Preventative Services

Fluoride varnish is a highly successful preventative measure, particularly in children at high risk of caries. As such Fluoride Varnish must be applied to all children at the end of GA treatment. Similarly fissure sealants are highly successful in preventing subsequent caries in children undergoing GA. It is recommended to fissure seal the pits and fissures of at least all erupted first permanent molars.

Follow Up

Child attendance to the dentist following a GA can play a significant role in the risk of a repeat dental GA. A proactive approach towards preventive care is needed to reduce the development of new dental disease. It is the responsibility of the referring clinician to facilitate regular review and for on-going prevention.

The following recommendations are made for the treatment of children under DGA.

1. All clinicians must enter the code of 949 into titanium for all patients treated under GA and under the correct visit setting.

2. Where treatment is not possible for children and adolescents in the dental chair and treatment requirement is non-emergency, dedicated appointments for preventive services (topical fluoride, fissure sealants, oral hygiene instruction and dietary counselling) preferably with dental/oral health therapists should be scheduled before the GA service is offered.

3. For children and adolescents having a GA, preventive service use should be maximised during the GA if they have not been completed prior. This includes examination for initial demineralisation on all tooth surfaces for spot application of **fluoride varnish**, as well as **fissure sealants** of all erupted first permanent molars.

4. Restorative treatment provided under GA should utilise techniques and materials that provide the greatest durability. This includes use of **stainless steel crowns** for restoring primary molar teeth and eliminating the use of GIC for posterior multi-surface restorations and load bearing areas.

5. Teeth treated under GA with questionable prognosis requiring large restorations, particularly where there is pulpal involvement in primary teeth or permanent molars, should be considered for extraction rather than restoration unless the tooth is critical for function or guiding eruption of permanent teeth.

6. Bitewing radiographs are mandatory where posterior interproximal contacts exists. This can be taken prior to or during the GA.

7. A consultation should be undertaken at the RDHM for every child prior to dental treatment under GA, including a pre-operative caries risk, clinical and radiographic dental assessment, followed by detailed treatment planning.

8. Under GA, extractions are encouraged over restorations in teeth with questionable pulpal prognoses

9. Under GA, the extraction of anterior primary teeth, instead of placement of composite strip crowns, should be undertaken in high caries risk children.

10. A post-dental general anaesthesia recall system must be implemented whereby patients can be monitored and their caries activity managed, including provision of additional preventive care.

Definitions

Nil

Revision date	Policy owner
October 2020	Chief oral Health Advisor
Approved by	**Date approved**
Clinical Leadership in Practice Committee	October 2017

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