

Childhood Tooth Decay (Early Childhood Caries)

Canonical: <https://directory.collinsstreetspecialistcentre.com.au/procedures/paediatric-dentistry/childhood-tooth-decay-early-childhood-caries/>

Description:

Tooth decay is the most common chronic disease in childhood — affecting one in four Australian children before they start school. Despite being almost entirely preventable, early childhood caries (ECC) continues to be...

Details:

Collins Street Specialist Centre: Childhood Tooth Decay — Understanding, Treating, and Preventing Early Childhood Caries

Tooth decay is the most common chronic disease of childhood, affecting one in four Australian children before they start school. Despite being almost entirely preventable, early childhood caries (ECC) remains a leading cause of pain, dental infection, and hospitalisation in young children. The good news is that with the right knowledge and professional support, decay can be caught early, treated effectively, and often stopped before it becomes serious.

At Collins Street Specialist Centre, our specialist paediatric dentists work with families across Melbourne to do exactly that.

Frequently Asked Questions

What is early childhood caries (ECC)? Tooth decay in children under six. It's the current clinical term for what was once called "baby bottle tooth decay."

How common is it in Australia? One in four children develop decay before school age.

Is it preventable? Yes — almost entirely.

What bacteria causes it? Primarily *Streptococcus mutans*, which produces acid when it feeds on sugars in food and drink.

Can adults pass decay bacteria to children? Yes. The bacteria spread through shared utensils, pre-tasting food, or close oral contact — even before a child has any teeth.

Does sleeping with a bottle cause decay? Yes. Saliva flow drops during sleep, so liquid pools around the upper front teeth and bacteria have hours of uninterrupted access to sugar.

Which teeth are most affected by bottle decay? The upper front teeth (maxillary incisors).

Does sippy cup use cause decay? Prolonged use throughout the day increases risk in the same way.

Is it the amount of sugar or the frequency that matters more? Frequency. Each sugar exposure triggers roughly 20 minutes of acid attack, dropping the oral pH below the threshold at which enamel

starts to dissolve. Grazing continuously — even on fruit or crackers — keeps that cycle running almost without interruption.

****Are baby teeth actually important?**** Yes. They hold space for the permanent teeth, support early speech, allow proper chewing, and influence jaw growth. Losing them early can have lasting effects on dental development.

****What is MIH (chalky teeth)?**** Molar-Incisor Hypomineralisation is a developmental condition affecting enamel quality in the permanent first molars and sometimes the incisors. Affected teeth decay quickly and are often sensitive. Dr Angel Babu has particular expertise in MIH at Collins Street.

****What is the earliest visible sign of decay?**** White spot lesions along the gumline of the upper front teeth. At this stage, the process can sometimes be reversed with fluoride and remineralisation therapy.

****What is Silver Diamine Fluoride (SDF)?**** A topical liquid that arrests active decay. It's especially useful for young children who aren't ready for invasive treatment. It does permanently stain treated decay black.

****What is a stainless steel crown?**** The most evidence-supported option for restoring extensively decayed primary molars. Placed in a single visit, with strong long-term outcomes.

****What is a zirconia crown?**** A tooth-coloured alternative to stainless steel, particularly useful for front teeth. Placement requires dedicated postgraduate training and isn't widely available in general practice. Dr Susan Hinckfuss holds specialist expertise in this area.

****What is a pulpotomy?**** Removal of infected pulp tissue from the crown of a tooth while preserving the root, allowing the tooth to remain functional until it naturally falls out.

****When is extraction necessary?**** When a tooth can't be restored. If a baby tooth is removed early, a space maintainer is usually placed to prevent neighbouring teeth from drifting.

****What is treatment under general anaesthesia used for?**** Completing all necessary dental work in a single session for very young children or those with extensive decay who can't be treated cooperatively in the chair. Dr Angel Babu has extensive GA paediatric dentistry experience through his senior clinical role at the Royal Children's Hospital Melbourne.

****What's the only appropriate liquid in a bedtime bottle?**** Water.

****How much juice is recommended for toddlers?**** Around 120 ml per day, at mealtimes only.

****How should children brush?**** Twice daily — morning and last thing before bed. Use a smear of fluoride toothpaste (no bigger than a grain of rice) for children under two, and a pea-sized amount from two to six. Parents should supervise brushing until at least age seven or eight; children don't have the hand coordination to do it reliably before then.

****When should interdental cleaning start?**** Once adjacent teeth are touching. A toothbrush can't reach those surfaces, and they're a common place for decay to begin.

****Does treating a caregiver's decay reduce the child's risk?**** Yes. Fewer active cavities in the household means less transmissible bacteria.

****Is a referral needed to book at Collins Street?**** No referral required.

****Where is the practice?**** Level 8, Manchester Unity Building, 220 Collins Street, Melbourne CBD.

****How can specialist registration be verified?**** At [AHPRA.gov.au](https://www.ahpra.gov.au).

What Is Early Childhood Caries?

Early childhood caries is the clinical term for tooth decay in children under six. The older names — "baby bottle tooth decay," "bottle rot" — point to one of its main causes, but the condition is broader than those labels suggest.

Decay starts when acid-producing bacteria in the mouth feed on fermentable sugars, releasing acids that gradually break down tooth enamel. In young children, whose enamel is thinner and more vulnerable than in adults, this can move fast — progressing from early signs to significant cavitation within months in high-risk cases.

A few things tend to surprise families when they first learn about ECC:

Baby teeth matter more than most people assume. They're not just placeholders. They hold arch space for the permanent teeth developing underneath, support early speech, allow proper chewing, and shape the trajectory of jaw growth. Losing them early — through extraction, infection, or structural breakdown — can have real consequences for how the permanent dentition develops.

Decay bacteria are contagious. *Streptococcus mutans* passes between people, most often from caregivers to young children through shared utensils, pre-tasting food, or close oral contact. A caregiver with active, untreated decay can transmit cariogenic bacteria to an infant who hasn't yet cut a single tooth.

ECC can move quickly. A white spot lesion on a tooth surface can progress to frank cavitation and structural collapse within weeks to months in susceptible children. Early identification matters.

What Causes Childhood Tooth Decay?

Dental caries develops through the interaction of four factors: susceptible tooth structure, cariogenic bacteria, fermentable carbohydrates, and time. In young children, several specific patterns substantially raise the risk.

Baby bottle and sippy cup decay

Settling a child to sleep with a bottle of milk, formula, juice, or any sweetened liquid is one of the most significant modifiable risk factors for ECC. During sleep, saliva flow drops sharply, pooled liquid bathes the upper front teeth, and bacteria have hours of uninterrupted access to sugar. The resulting decay pattern is clinically distinctive — typically appearing first on the maxillary incisors as white spots or brown discolouration along the gumline.

A similar pattern can develop with prolonged sippy cup use throughout the day, or extended on-demand overnight breastfeeding once teeth have erupted.

Frequency of sugar exposure

What matters clinically isn't just how much sugar a child consumes, but how often. Each sugar exposure triggers roughly 20 minutes of acid attack, during which oral pH drops below the threshold for enamel dissolution. A child who sips juice throughout the day, grazes on fruit or crackers between meals, or has unrestricted access to sweetened drinks is exposed to a near-continuous acid cycle. Three or four structured eating occasions are far less damaging than constant, unstructured grazing.

Transmitted bacteria

Cariogenic bacteria pass from caregivers to children. Parents or carers with high levels of active, untreated decay — particularly those who share utensils or cups with young children — increase the child's oral bacterial load and, with it, their caries risk.

Enamel defects

Some children are born with, or develop during infancy, structural enamel defects that make their teeth more susceptible to decay. Molar-Incisor Hypomineralisation (MIH) — commonly called "chalky teeth" — affects the mineralisation quality of the permanent first molars and sometimes the incisors. Affected teeth can decay rapidly, are frequently sensitive, and often need specialist-level management. Dr Angel Babu has particular clinical expertise in hypomineralisation at Collins Street Specialist Centre.

When Should You Be Concerned? Signs to Watch For

****Early warning signs worth getting assessed:****

- White spot lesions on the upper front teeth, particularly along the gumline. This is the earliest visible sign of enamel demineralisation, before a cavity forms. At this stage, the process can sometimes be arrested or reversed with remineralisation and fluoride therapy.
- Brown spots or discolouration on any tooth surface
- Visible cavitation or roughened, irregular tooth edges
- A child pulling at their cheek or mouth, rubbing their face, or showing unexplained irritability around feeding

****Signs that need more urgent attention:****

- Visible dark decay or extensive structural breakdown
- Swelling of the gum near a tooth
- A child reporting toothache, or waking at night in pain
- A localised swelling or lump on the gum — this may indicate a dental abscess and needs prompt clinical review
- A child refusing hard or cold foods because of sensitivity

If any of these are present, a timely assessment with a specialist paediatric dentist is strongly recommended. Dental infections in children can progress quickly and, in uncommon but serious cases, may spread beyond the immediate oral structures.

What to Expect at Collins Street Specialist Centre

Every consultation begins with a thorough clinical examination. Our specialist paediatric team assesses the extent and distribution of decay, takes low-dose digital radiographs where indicated to identify lesions not visible to the eye, and develops a treatment and prevention plan tailored to the child's specific risk profile and developmental stage.

Non-invasive and minimally invasive options

****Fluoride varnish**** — A high-concentration fluoride preparation applied directly to at-risk surfaces or areas of early demineralisation. Effective at remineralising early lesions and slowing slowly progressing decay. Painless and done in seconds.

****Silver Diamine Fluoride (SDF)**** — A topically applied liquid that arrests active carious lesions and inhibits further progression. Particularly useful for young children who aren't developmentally ready for more invasive procedures. Families should know that SDF permanently stains treated decay black.

****Remineralisation strategies**** — Prescription-strength fluoride toothpastes, CPP-ACP products such as tooth mousse, and targeted dietary and oral hygiene guidance to change the conditions in which decay develops.

Restorative treatment

Where decay has progressed to frank cavitation, restoration is necessary. For primary teeth, the options depend on the clinical picture:

****Composite restorations**** — Appropriate for smaller cavities in accessible locations where moisture control is achievable.

****Stainless steel crowns**** — The most evidence-supported option for extensively decayed primary molars. Prefabricated, placed in a single visit, with strong long-term outcomes in the primary dentition.

****Zirconia crowns**** — A tooth-coloured alternative to stainless steel, particularly suited to front teeth where aesthetics matter. Dr Susan Hinckfuss holds specialist expertise in zirconia crown placement in children — a relatively recent development in paediatric dentistry that requires dedicated postgraduate training and isn't yet widely available in general practice.

****Pulp therapy (pulpotomy)**** — Where decay has reached the pulp but the tooth remains restorable, pulp therapy removes the infected coronal pulp and places a biocompatible medicament to preserve the remaining pulpal tissue, keeping the tooth functional until it naturally exfoliates.

****Extraction**** — Reserved for teeth with irreversible structural or pulpal damage that can't be restored, or where active infection makes retention impossible. When a primary tooth is removed early, a space maintainer is generally recommended to preserve arch length and prevent adjacent teeth from drifting.

Treatment under sedation or general anaesthesia

For very young children, those with extensive decay across multiple teeth, or children for whom cooperative management in the chair isn't feasible, treatment under general anaesthesia allows all necessary dental work to be completed safely in a single session. Dr Angel Babu has extensive GA paediatric dentistry experience through his senior clinical role at the Royal Children's Hospital Melbourne.

Aftercare and Prevention at Home

After restorative treatment, the goal is preventing new decay from developing. That means genuinely changing the dietary and hygiene conditions that allowed decay to take hold in the first place.

****Dietary changes with the most impact:**** - Stop the bedtime bottle — if a bottle is needed for settling, water is the only appropriate option - Restrict juice to mealtimes, with a maximum of around 120 ml per day for toddlers - Reduce the frequency of sugary snack exposures; structured meal and snack times are far better than continuous grazing - Make water the default between-meal drink - Offer cheese or dairy at the end of meals — both neutralise oral acid and support enamel remineralisation

****Oral hygiene:**** - Brush twice daily — on waking and last thing before bed - Use fluoride toothpaste: a smear no bigger than a grain of rice for children under two, a pea-sized amount from two to six - Parents and carers should perform or directly supervise brushing until at least age seven or eight; children don't have the manual dexterity to brush reliably before then - Start interdental cleaning once adjacent teeth are touching — the surfaces between teeth are inaccessible to a toothbrush and a common site for decay to begin

****Caregiver oral health:**** Treating active decay in caregivers reduces the pool of transmissible bacteria in the household. Shared utensils, cups, and close oral contact should be avoided where possible, particularly with infants and toddlers.

Why See a Specialist Paediatric Dentist?

Managing childhood tooth decay isn't simply a matter of filling individual cavities. In young children, every clinical decision carries implications for the developing dentition, jaw and facial growth, and the child's long-term relationship with dental care. Good management requires technical skill, an understanding of child development and behaviour, and the ability to sequence care in a way that protects the child's overall dental future.

A specialist paediatric dentist is trained to judge when to restore and when to monitor, when minimally invasive approaches are appropriate versus when definitive restorative treatment is needed, how to manage children with complex behavioural or medical needs, and how to give families practical, evidence-based guidance on the dietary and hygiene changes that actually reduce recurrence.

All specialist paediatric dentists at Collins Street Specialist Centre hold specialist registration with the Dental Board of Australia. Families and referring clinicians can verify specialist registration at [AHPRA.gov.au](https://www.ahpra.gov.au).

Our Paediatric Specialists

****Dr Susan Hinckfuss**** — BDDSc (Melb), DCD (Melb) — specialises in early childhood caries management, including zirconia crown placement for children, a technique requiring dedicated postgraduate training that remains outside the scope of most general dental practitioners. Dr Hinckfuss completed her specialist training at the University of Melbourne and subsequently held the position of Assistant Clinical Professor at the University of Minnesota — one of the leading paediatric dental programmes in North America — for three years.

****Dr Sarah Scott**** — BBiomedSci (Hons), BDent, DCLinDent (Paeds) — brings a family-centred approach to caries assessment and management, with more than 15 years of clinical experience across public and private paediatric settings, including extensive work in regional and underserved communities throughout Australia.

****Dr Angel Babu**** — DCLinDent PAED (Otago) — has specialist clinical expertise in high caries risk children, enamel hypomineralisation (MIH/chalky teeth), and complex paediatric dental treatment under sedation and general anaesthesia. Dr Babu holds a senior dental registrar position at the Royal Children's Hospital Melbourne and maintains specialist registration in both Australia and New Zealand.

****Dr Aish Kesava**** — DCD (Paeds) — practises across the full scope of paediatric restorative and preventive dentistry. *(Extended clinical biography forthcoming.)*

Our specialist paediatric team consults from Level 8, Manchester Unity Building, 220 Collins Street, Melbourne CBD. No referral is required to book an appointment.

Related Treatments

- **[**Fissure Sealants**]**(/procedures/paediatric-dentistry/fissure-sealants-for-children/) — Preventing decay in posterior teeth before it begins - **[**Your Child's First Dental Visit**]**(/procedures/paediatric-dentistry/your-child-s-first-dental-visit/) — Early assessment, risk stratification, and preventive planning - **[**Dental Anxiety in Children**]**(/procedures/paediatric-dentistry/dental-anxiety-in-children/) — Behaviour guidance and management strategies for children requiring restorative care - **[**Early Orthodontic Intervention**]**(/procedures/orthodontics/early-intervention-orthodontics-phase-1/) — Monitoring the developmental consequences of early tooth loss on arch space and jaw growth