Childhood Tooth Decay (Early Childhood Caries)

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Childhood Tooth Decay: Understanding, Treating, and Preventing Early Childhood Caries

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 a leading cause of pain, infection, and hospitalisation in young children. The encouraging news is that with the right knowledge and the right professional support, decay can be caught early, treated effectively, and in many cases stopped before it starts.

What Is Early Childhood Caries?

Early childhood caries is the clinical term for tooth decay occurring in children under the age of six. It was previously called "baby bottle tooth decay" or "bottle rot" — terms that reflect one of its primary causes, though the condition is actually broader than that.

Tooth decay begins when acid-producing bacteria in the mouth feed on sugars from food and drink, releasing acids that gradually dissolve the hard enamel surface of teeth. In young children, whose enamel is thinner and more vulnerable than in adults, this process can progress remarkably quickly — sometimes from first signs to severe cavitation within months.

A few key facts that parents often find surprising:

- **Baby teeth matter deeply.** They are not disposable placeholders. Baby teeth hold space for permanent teeth, support speech development, enable proper chewing and nutrition, and influence jaw growth. Losing them early — through decay, extraction, or infection — can have lasting consequences.

- **Decay is infectious.** The bacteria responsible for tooth decay (primarily *Streptococcus mutans*) are transmitted from person to person, most commonly from caregivers to children — through shared spoons, tasting food before offering it, or kissing on or near the mouth. A parent or carer with active decay can transmit decay-causing bacteria to a baby who doesn't even have teeth yet.

- **Early childhood caries can be aggressive.** What begins as a white spot on a tooth can progress to a brown cavity, then a full breakdown of the tooth structure, in a matter of weeks to months in high-risk children.

What Causes Childhood Tooth Decay?

Decay is caused by the interaction of four factors: susceptible teeth, decay-causing bacteria, fermentable carbohydrates (sugars), and time. In young children, several specific patterns dramatically increase risk:

Baby Bottle and Sippy Cup Decay

Putting a baby to bed with a bottle of milk, formula, juice, or any sweetened liquid is one of the most significant risk factors for ECC. When a child feeds and then falls asleep, saliva production drops, the liquid pools around the upper front teeth, and bacteria have hours of uninterrupted access to sugar. The result is a characteristic pattern of decay — often appearing first on the upper front teeth as white spots or brown patches.

This same pattern can occur with extended sippy cup use throughout the day, or prolonged breastfeeding on demand overnight, particularly once teeth have erupted.

Frequent Sugar Exposure

It's not just how much sugar a child consumes — it's how often. Every sugar exposure triggers an acid attack that lasts approximately 20 minutes. A child who sips juice throughout the day, snacks frequently on fruit or crackers, or has access to sweet drinks between meals is in a near-constant state of acid attack. Three or four contained meal times are far less damaging than continuous grazing.

Transmitted Bacteria

As noted above, ECC-causing bacteria can be passed from caregivers to children. Parents with high levels of untreated decay, and particularly those who share utensils with young children, increase the child's bacterial load — and therefore their decay risk.

Enamel Defects

Some children are born with, or develop during infancy, enamel defects that make their teeth intrinsically more vulnerable. Molar-Incisor Hypomineralisation (MIH) — sometimes called "chalky teeth" — is a developmental condition affecting the quality of enamel on permanent first molars and sometimes incisors. Affected teeth can decay rapidly, are often sensitive, and may need specialist management. Dr Angel Babu has particular expertise in hypomineralisation at CSSC.

When Should You Be Concerned? Signs to Watch For

Early warning signs:

- **White spots on the upper front teeth** — particularly along the gum line. This is the very first sign of enamel demineralisation, before a cavity forms. At this stage, the process can sometimes be reversed with intensive fluoride treatment. - **Brown spots or discolouration** on any teeth - **Visible holes or rough edges** in tooth surfaces - **Your child pulling at their cheek or mouth**, rubbing their face, or seeming irritable around feeds

More urgent signs:

- **Visible dark decay** or extensive breakdown of tooth structure - **Swollen gums** around a tooth - **A child complaining of toothache**, or waking at night in pain - **A lump or swelling on the gum** (this may indicate a dental abscess — this needs prompt attention) - **A child refusing to eat** hard or cold foods due to tooth sensitivity

If you notice any of these signs, see a specialist paediatric dentist promptly. Dental infections in children can progress quickly and, in rare cases, can spread beyond the mouth.

What to Expect at Collins Street Specialist Centre

A thorough, unhurried examination is the starting point. Our specialist paediatric team will assess the extent and pattern of decay, take low-dose digital X-rays to identify decay between teeth or under the gum line, and develop an individualised treatment and prevention plan.

Non-Invasive and Minimally Invasive Treatment Options

Fluoride varnish — A highly concentrated fluoride is painted directly onto at-risk or early-decay areas. It is highly effective at remineralising early lesions and arresting slow-progressing decay. Painless, takes seconds.

Silver Diamine Fluoride (SDF) — A liquid treatment that can arrest active decay and prevent spread. Particularly useful in young children who cannot yet tolerate more invasive treatment. It does darken the treated area to black, which is worth being aware of.

Remineralisation strategies — Prescription-strength fluoride toothpastes, CPP-ACP (tooth mousse) products, and dietary and hygiene coaching to alter the conditions in which decay thrives.

Restorative Treatment

Where decay has progressed to cavities, restoration is necessary. For baby teeth, options include:

Tooth-coloured (composite) fillings — For smaller cavities in accessible locations.

Stainless steel crowns — The most durable restorative option for heavily decayed baby back teeth. They are prefabricated, placed in a single visit, and have an excellent long-term success record for primary molars.

Zirconia crowns — A tooth-coloured alternative to stainless steel crowns, providing excellent aesthetics particularly for front teeth. Dr Susan Hinckfuss has specialist expertise in zirconia crowns for children — a more recent development in paediatric dentistry that many general dentists are not yet trained in.

Pulp therapy (pulpotomy) — If decay has reached the nerve of a baby tooth but the tooth can be retained, pulp therapy removes the infected portion of the nerve and seals the tooth, allowing it to remain functional until natural shedding.

Extraction — Reserved for teeth that are too severely decayed to restore, or where infection is present and the tooth cannot be saved. If a baby tooth is extracted early, a space maintainer is usually recommended to preserve the gap for the permanent tooth.

Treatment Under Sedation or General Anaesthesia

For very young children, children with extensive decay requiring multiple teeth to be treated, or children who cannot cooperate with treatment while awake, treatment under general anaesthesia allows all necessary work to be completed safely and efficiently in a single session. Dr Angel Babu has extensive experience in GA paediatric dentistry through his role at the Royal Children's Hospital Melbourne.

Aftercare and Prevention at Home

After treatment, the goal is to prevent new decay from developing. This requires a genuine change in the conditions that allowed decay to develop in the first place.

Diet changes that matter most: - Eliminate the bedtime bottle (other than water) - Restrict juice to mealtimes only — and limit to 120ml per day for toddlers - Reduce frequency of sugary snacks; aim for structured meal and snack times - Encourage water as the main drink throughout the day - Offer cheese and dairy at the end of meals — both neutralise acid and help remineralise enamel

Hygiene routines: - Brush twice daily — morning and, critically, before bed - Use age-appropriate fluoride toothpaste — a tiny smear for children under two, a pea-size amount for ages two to six - Parents should brush for their children until at least age seven or eight; children don't have the motor skills to do it reliably before then - Consider flossing from when teeth begin to touch — the spaces between teeth are invisible to toothbrushes

Caregiver hygiene: If you have active decay yourself, treating it reduces the bacterial load you can pass to your child. Avoid sharing utensils or cups.

Why See a Specialist Paediatric Dentist?

Managing childhood tooth decay is not simply a matter of filling cavities. In young children, every treatment decision affects the developing dentition, jaw growth, and psychological relationship with dental care. Getting the sequencing right — and the risk management right — requires specialist training.

A specialist paediatric dentist understands when to restore and when to watch, when to use minimally invasive options versus definitive treatment, how to manage anxious children who need complex work, and how to counsel families on the behavioural and dietary changes that actually prevent recurrence.

All CSSC paediatric specialists hold specialist registration with the Dental Board of Australia, verifiable at AHPRA.gov.au.

Our Paediatric Specialists

Dr Susan Hinckfuss — BDSc (Melb), DCD (Melb) — has specialist expertise in early childhood caries management, including zirconia crown placement for children — a technique requiring dedicated postgraduate training. She trained at the University of Melbourne and spent three years as Assistant Clinical Professor at the University of Minnesota, one of the leading paediatric dental programmes in North America.

Dr Sarah Scott — BBiomedSci (Hons), BDent, DClinDent (Paeds) — brings a holistic, family-centred approach to caries management, with over 15 years of experience across public and private paediatric settings including regional and underserved communities.

Dr Angel Babu — DClinDent PAED (Otago) — has specialist expertise in high caries risk children, hypomineralisation (MIH/chalky teeth), and the management of complex decay under sedation and general anaesthesia. Senior dental registrar at the Royal Children's Hospital Melbourne; registered in Australia and New Zealand.

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

Our specialists consult from Level 8, Manchester Unity Building, 220 Collins Street, Melbourne CBD. No referral is required to book.

Related Treatments

- [**Fissure Sealants**](/paediatric-dentistry/fissure-sealants/) — Preventing decay in back teeth before it starts - [**Your Child's First Dental Visit**](/paediatric-dentistry/first-dental-visit/) — Early assessment and prevention - [**Dental Anxiety in Children**](/paediatric-dentistry/dental-anxiety-children/) — Managing anxious children who need restorative care - [**Early Orthodontic Intervention**](/orthodontics/early-intervention/) — Monitoring how early tooth loss affects jaw development and spacing