Towards a Cavity-Free Future for Infants and Children in South Africa

Building on the best available evidence and practice, how can a small number of innovative pilots, focused on measurable impact in caries prevention and care for those aged 0-6, be designed and implemented with a view to sustainable national rollout?

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Alliance for a Cavity-Free Future ACFF Stop Caries NOW for a Cavity-Free Future

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The Alliance for a Cavity-Free Future (ACFF)

The ACFF is a global not-for-profit organisation which seeks to promote integrated clinical and public health action to confront the burden of tooth decay, fight dental caries initiation and progression, and, along with a global community of supporters, progress towards a Cavity-Free Future for all age groups. The ACFF was established in collaboration with a worldwide panel of experts in dentistry and public health who share a fervent belief in joining together across professional, geographic, and stakeholder lines, to create a unified global movement committed to combating caries in communities around the world and promoting good oral health as an integrated part of improving general health and wellbeing.

For more information, please visit www.acffglobal.org

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A Word of Thanks

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Foreword

Stop Caries NOW for a Cavity-Free Future

This Oral Health Policy Lab held in Cape Town, South Africa, was one of a series held by the **Alliance for a Cavity Free Future (ACFF)** charity since 2017. A Policy Lab is a collaborative workshop that brings together diverse stakeholders, informed by evidence, to make a breakthrough on a particular problem. The first three ACFF Policy Labs addressed global questions around Moving Towards a Cavity Free Future and were held in London, England. These were followed by a 2022 Policy Lab in Ottowa, Canada, the first that focused on agreeing actions and building momentum at a country-level.

The second country-level Policy Lab in South Africa was designed to answer the very specific question: **Building on the best available evidence and practice, how can a small number of innovative pilots, focused on measurable impact in caries prevention and care for those aged 0-6, be designed and implemented with a view to sustainable national rollout?**

Early Childhood Caries (ECC) is where tooth decay affects children from 0-6 years of age. ECC is a huge global issue resulting in significant personal, family, economic and societal burdens. ECC prevalence has been very high in South Africa for decades and mounting this Policy Lab was a response to see if transformative change for this persistent challenge might be possible.

Fortunately, there is now strong international evidence, assembled by groups such as the International Association for Paediatric Dentistry (IAPD) the World Health Organisation (WHO) and the ICDAS Foundation, which points to the opportunities for prevention and control of tooth decay and the need to move away from the more traditional model of 'curative' or 'restorative' treatment.

We were very fortunate to have a local Planning Group which helped us design and deliver the Policy Lab. These experienced individuals guided us on the current situation with regard to ECC in South Africa, pointed to examples of policies and practice to build on, suggested innovative interventions that might realistically be piloted and helped recruit an excellent group of people to take part in the Policy Lab .

These participants worked energetically through an intense 24-hour process to brainstorm, challenge, refine and co-create what became a set of three pilots and four enabling actions. They did so with a spirit of **putting the mouth back in the body, working with existing health and education systems and ensuring that no child is left behind.**

The enthusiasm and selfless teamwork were tangible throughout the event. The next challenge is to maintain that momentum in the implementation and monitoring of the plans agreed.

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Chief Strategy & Advocacy Officer of the **Alliance for a Cavity Free Future**
Emeritus Professor of Oral Health and Impact, Kings' College London

> Let us start preventive and oral health services at Crèches – because when one starts there it can prevent the progression of dental decay that is invisible at this age.
> **- Dr Mzimkhulu Mcuba**

> It was a fantastic experience spending a full 24 hours brainstorming with like-minded individuals from diverse backgrounds, all working towards the same goal. I'm excited to explore how implementation will take shape!
> **- Dr Carl Potgieter**

> It's feasible, possible and can be sustainable. South Africa is going to win the ECC battle.
> **- Dr Maphefo Thekiso**

> This Policy lab was the perfect vehicle to bring all the stakeholders and role players together into one venue where we could collaboratively decide on at least one intervention that would promote child oral health in the country.
> **- Prof Veerasamy Yengopal**

How Can I Use This Document?

The ideas and suggested actions in this document are intended to be of use to anyone who is interested in bringing about a 'Cavity-Free Future' for children aged 0-6 in South Africa. It is intended particularly to assist those working in and around the dental and oral health professions, early childhood development, education and oral health and child wellbeing research. The aim is to instigate a small number of innovative pilots that lead to a measurable and sustainable reduction in tooth decay amongst young children, in particular early childhood caries (ECC). These pilots are to be designed and implemented with a view to sustainable national rollout.

Here are some examples of how this document might be used to shape and influence that change.

Inform

While the evidence and information needed to address a complex policy issue often already exists, we rarely have all the relevant data synthesised in a way which helps us to make sense of the problem. The infographic (found on the back of this document) and additional data provided within this report is intended to be a resource for advocates to inform both themselves and other stakeholders.

Share and connect

This report contains details of the concepts developed by our broad range of expert participants, and invites readers to contribute their time, expertise and advocacy skills to share and connect with the existing initiatives happening within South Africa and elsewhere around the world.

Work together and act

Working together with the full range of stakeholders will be critical to the next steps in this journey towards a Cavity-Free Future for infants and children in South Africa. The stakeholders include: National and Provincial government; Oral health care professionals; crèches and other early childhood development (ECD) centres; Providers of other services to infants and children (including those in other health professions, schools and social care); Patients, families and carers, local community bodies; Professional bodies, guidance and education providers; Dental and oral health industries.

The Next Steps section of the document includes further ideas to build on the outputs of the Policy Lab.

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1 The Challenge

1.1 Tooth decay amongst young children in South Africa is unacceptably high, causing pain, tooth loss and significant harms to wellbeing

Dental caries (or tooth decay) is a chronic non-communicable disease (NCD) adversely affecting the mineralization of teeth. It is influenced by multiple biomedical factors such as diet (especially sugar consumption), the oral microbiome, tooth integrity and by underlying social determinants of health, including low socioeconomic status, parental education, maternal nutrition, and psychosocial issues.

Tooth decay in children younger than six years of age is termed Early Childhood Caries (ECC). Without prevention or in the absence of 'non-operative' interventions at an early stage, dental caries in children can advance to become more rampant forms of the disease, resulting in cavities (which are lesions involving loss of the tooth's surface integrity), abscesses and pain.

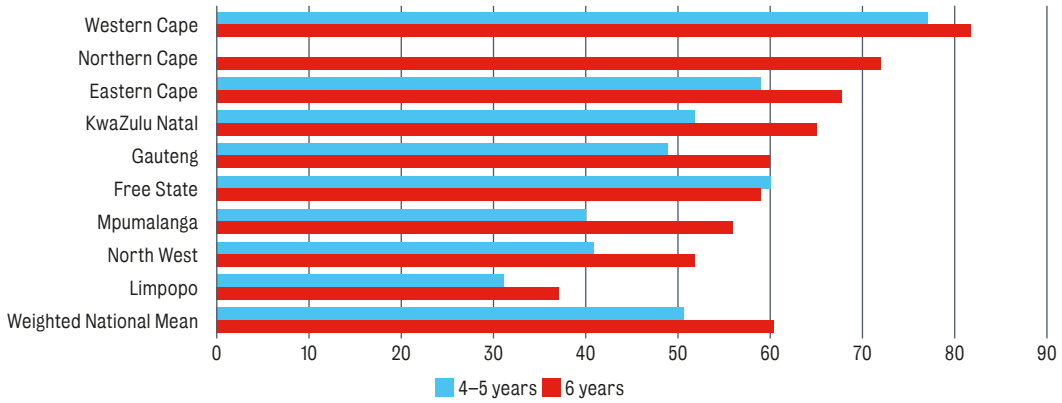
By the age of six, 60% of children in South Africa have ECC (identified using the WHO basic methods assessment) and almost all of this is untreated.[1] This shows that the disease is already well-established by the time children reach school.

The limited evidence available suggests that this level of ECC prevalence has not changed over the last 20 years and is higher now than in the late 1980s.[2,3,4,5,6]

Amongst the provinces, Western Cape has the highest-ever recorded proportion of affected children (84% of six-year-olds in 2015) and it is apparent that oral health strategies are failing, with a lack of promotive and preventive services related to preschool children. Consequently, treatment of preschool children in the public sector almost exclusively involves dental extractions under general anaesthetic. The number of these procedures in that province has been rising steadily and reached almost 65,000 a year when last reported.[7]

ECC has huge negative impacts on a child's quality of life extending beyond the chronic pain to difficulty with eating and sleeping and poor school performance.

Percentage of tooth decay (dental caries) in South Africa by age group and province, 2004



1 National Children's Oral Health Survey, 2004

2 Van Wyk PJ, Van Wyk C. Oral health in South Africa. Int Dent J. 2004;54(6 Suppl 1):373-7

3 Thekiso M, Yengopal V, Rudolph MJ, Bhayat A. Caries status among children in the West Rand District of Gauteng Province, South Africa. SADJ. 2012; 67(7):318-20

4 Joosab Z, Yengopal V, Nqcobo CB. Caries prevalence among HIV-infected children .... South Africa. SADJ. 2012;67(7):314-7

5 Cleaton-Jones P, Fatti P, Bönecker M. Dental caries trends in 5- to 6-year-old and 11- to 13-year-old children in three... 1970-2004. Int Dent J. 2006;56(5):294-300

6 Reddy M, Singh S. Dental Caries status in six-year-old children at Health Promoting Schools in KwaZulu-Natal, South Africa. SADJ. 2015;70(9):396-401

7 South African Dental Journal 2012, Vol 67 no 1 p14 - p19

Families also face concerns with their children's wellbeing and the financial burden of treatment costs and lost workdays.[8]

Internationally Accepted Caries Terminology [9]

What is dental caries?

Dental caries is a biofilm-mediated, diet modulated, multifactorial, non-communicable, dynamic disease resulting in a net mineral loss of dental hard tissues. It is determined by biological, behavioural, psychosocial, and environmental factors. As a consequence of this process, a caries lesion develops.

What is early childhood caries (ECC)?

ECC is defined as the presence of one or more decayed (non-cavitated or cavitated lesions), missing or filled (due to caries) surfaces, in any primary tooth of a child under six years of age. Primary teeth maintain the space for the permanent teeth and are essential to a child's wellbeing since dental caries on primary teeth may lead to chronic pain, infections, and other morbidities.

What is a dental cavity?

A tooth with caries that has progressed far enough to produce a collapse in the integrity of the outer enamel, exposing the inner dentine. This stage of caries typically leads to a restoration or filling.

What is cavity-free?

Cavity-free implies that there are no detected cavities in dentine. However, thorough clinical examination may reveal the presence of non-cavitated and/or micro-cavitated carious lesions.

ACFF has also promoted a simple 'Public' Definition of Caries

"Dental caries, also known as tooth decay, is the disease that will cause dental cavities if not stopped."

1.2 Social, cultural and behavioural factors in South Africa lead to extractions for ECC rather than prevention or restoration

The basic root causes of ECC include high sugar consumption, poor oral hygiene practices (in particular not brushing teeth regularly with fluoridated toothpaste) and limited access to dental care.[10] These in turn are affected by access to and the affordability of toothpaste, toothbrushes and professional oral or dental services. There are, in addition, a complex mix of other social, cultural and behavioural factors which leave some children more exposed to it than others:

- lack of knowledge (for example, that sugared drinks cause tooth decay)
- practices and beliefs (for example, that it is not important to look after primary teeth, that caries is an infectious disease, that replacement teeth are better than your own)
- low expectations (for example, that family or community members have always lost their teeth and that is to be expected)
- poor interactions with healthcare (for example, pessimism about the support available or a lack of trust in healthcare workers)
- low levels of health literacy and language barriers than hinder the spread and take-up of knowledge related to oral health promotion and prevention.

All of this can lead to a preference for extraction over restoration (and certainly a lack of prevention) often compounded by late-stage patient presentation. ECC also shares common risk factors with other non-communicable diseases (NCDs) associated with excessive sugar consumption, such as cardiovascular disease, diabetes, and obesity. Hence, work on prevention for ECC can contribute to tackling the spread of these other life-limiting NCDs.

8 Molete & Phakela, 2018

9 Machiulskiene, V., et al., Terminology of Dental Caries and Dental Caries Management: Consensus Report of a Workshop Organized by ORCA and Cariology Research Group of IADR. Caries Res, 2020. 54:7–14. DOI: 10.1159/000503309

10 Meyer & Enax, 2018

1.3 Structural 'system-level' factors also constrain efforts to reduce ECC

While excellent national and provincial strategic plans for tackling oral disease have been developed, coordination and standardization of preventive services is not easy, and it is proving hard to ensure implementation, monitoring and evaluation across districts. Challenges include:

- ageing infrastructure and lack of facilities (for example, only a minority of primary healthcare clinics have dental services and there are insufficient mobile dental units to reach underserved areas)
- variations in how disease surveillance is undertaken and how services are designed and delivered
- limits on new funding, especially in the short-term
- a lack of political support for the enforcement of oral health policies.

At a workforce level, improving the prevention of ECC is constrained by:

- oral health still largely being seen as separate from the rest of the body. Rather than being an integral part of general health, oral health interventions are often delivered separately to other health initiatives
- not structuring oral health into primary, secondary and tertiary levels of care, which means oral health budgets are not aligned to needs or are not budgeted at all for some typical secondary and tertiary purposes (for example, there is a poor referral system that limits follow-up from schools to primary healthcare centres)
- a relatively small oral health workforce, within which only a minority of those in dental practice settings focus on very young and young children. This results in a lack of capacity to lead and coordinate services effectively at different levels of care, holding back the standardization of oral health services and delaying the transmission of oral health information
- oral hygienists, nurses and other non-dental professionals currently lacking the skills to undertake dmft (decayed, missing, and filled teeth) calibration and surveys of caries prevalence
- investment in new personnel not matching to population needs and prevention priorities (for example, focusing more on new dentists than other professions).

More widely, food security and access to nutritious food is an issue for many families, which particularly impacts what is given to very young children.

2 The opportunity

2.1 World Health Organisation (WHO)

The WHO Global Oral Health Action Plan (2023-2030) makes clear that we have the opportunity to prevent caries, and how succeeding in this would result in wider health benefits.[11] Caries shares common risk factors with other non-communicable diseases, including diabetes. By reducing the prevalence of caries and minimizing its associated common risk factors, we can improve overall health.

The Action Plan has the following overarching goals:

- By 2030, 80% of the global population will be entitled to essential oral health care services
- By 2030, the combined global prevalence of the main oral diseases and conditions over the life course will show a relative reduction of 10%.

This is a major commitment to investing in the future of oral health on a global basis, including recommendations for the education of health professionals, the need to focus on the role of primary care and the importance of integrated teams for oral health as part of the wider healthcare workforce. The WHO has also added various fluoride products, including fluoride toothpaste and silver diamine fluoride (SDF), along with resin sealants and restorations, to its list of essential medicines for adults and children that all populations should have access to.[12,13]

> "Most oral diseases and conditions are preventable and can be effectively addressed through population-based public health measures. Upstream policy interventions, such as those targeting social and commercial determinants, are cost-effective with high population reach and impact. Midstream initiatives include creating more supportive conditions in key settings like households, schools, workplaces, long-term care facilities and community venues. Downstream interventions are also critical, including essential prevention and evidence-based clinical oral health care."
> **WHO Global Oral Health Action Plan (2023- 2030) page 3**

The November 2024 **WHO Global Oral Health Meeting (GOHM)** in Bangkok, Thailand, reaffirmed a collective commitment towards accelerating the implementation of the WHO Global Oral Health Action Plan 2023-2030 in all countries. This event brought together around 350 participants from more than 100 countries, including 12 health ministers, representatives from 35 UN agencies and non-state actors. It was the first ever global meeting on oral health where combined WHO teams from Geneva and the Regional Offices met with senior country ministers (typically a country's chief dental officer and lead on universal health coverage/NCDs).

The resulting **2024 Bangkok Declaration 'No Health Without Oral Health'**[14] will be used to advocate for better prioritization of prevention and control of oral diseases at national level and at international level (for example, during WHO governance meetings and as part of the preparatory process for the 4th UN high-level meeting on NCDs in September 2025).

11 https://www.who.int/publications/i/item/9789240090538

12 World Health Organisation, WHO Model List of Essential Medicines- 22nd list, 2021.Accessed 01/02/2021; Available from: https://www.who.int/publications/i/item/WHO-MHP-HPS-EML-2021.02

13 World Health Organisation, WHO Model List of Essential Medicines for Children - 8th list, 2021. Accessed 01/02/2023; Available from: https://www.who.int/publications/i/item/WHO-MHP-HPS-EML-2021.03

14 https://cdn.who.int/media/docs/default-source/ncds/mnd/oral-health/bangkok-declaration-oral-health.pdf?sfvrsn=15957742_4

2.2 FDI World Dental Federation

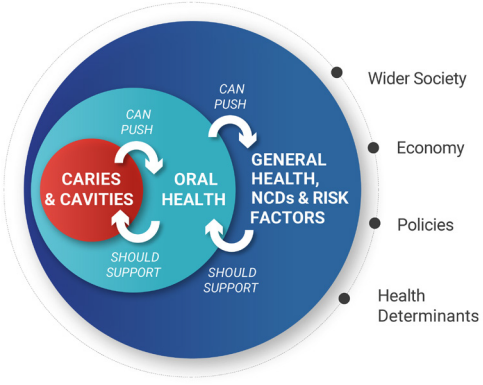
In its 'Vision 2030' the World Dental Federation (FDI) emphasizes the centrality of oral health to overall health and encourages dentists to give equal or greater focus to maintaining good overall oral health and the benefits of this for an individual's ability to function and socialise, rather than just the diseases that need to be treated.

> Oral health means the health of the mouth. No matter what your age, oral health is vital to general health and well-being. Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex (head, face, and oral cavity).[15]

2.3 Alliance for a Cavity-Free Future (ACFF)

The ACFF promotes research and changes in policy and clinical practice worldwide with the aim of ensuring that all children born after 2030 remain cavity-free throughout their lifetime.[16] A key factor in achieving this is to highlight the compelling link between caries and cavities and the general health experienced by an individual or seen across whole population groups, as illustrated.

'Interrelationships between caries and cavities, oral health, and wider health'



The charity has developed frameworks and tools that assist in shaping oral health systems to focus more fully on prevention. These include the 'Caries Puzzle' which shows the interlocking nature of an interprofessional approach to oral care, and highlights what changes are needed to deliver effective caries prevention across the board.

'The ACFF Cavity-Free Puzzle'

In 2021, the ACFF Making Cavities History Taskforce launched its 'Global Consensus' report[17] with a range of policy proposals that can be used by countries around the world to take steps towards achieving a cavity-free future. These recommendations built on the outputs of three preceding 'Policy Labs' which brought together representatives from many of the world's leading dental universities and associations, as well as dental practitioners and public health professionals.[18,19,20]

The Policy Lab program has since developed into an Oral Health Policy Lab Network that aims to support individual countries in implementing these recommendations.

Working through 29 'Chapters' across over 50 countries, ACFF pursues a 'glocal' approach – drawing on global knowledge and best-practice tailored to the specific circumstances found locally. Each Chapter is run by dedicated local teams of dental and public health professionals and educators. Sadly the South Africa Chapter lapsed following the retirement of key individuals and restrictions on funding. However, it is

15 Glick, M., et al. Vision 2030: Delivering Optimal oral Health for All. Geneva: FDI World Dental Federation, 2021

16 The Alliance for a Cavity-Free Future, Accessed 20/02/2025; Available from: https://www.acffglobal.org

17 Pitts, N. & Mayne, C. A Global Consensus for Achieving a Dental Cavity-Free Future. 2021 DOI: 10.18742/pub01-045

18 Vernazza, C., et al,. Dental Policy Lab 1- towards a cavity-free future. Br Dent J, 2021. 231,754–758. DOI: 10.1038/s41415-021-3723-3

19 Mazevet, M., Pitts, N. & Mayne, C. Dental Policy Lab2-towards paying for health in dentistry. Br Dent J, 2021.231,759–763. DOI: 10.1038/s41415-021-3725-1

20 Pitts, N.,et al., Dental Policy Lab 3: towards oral and dental health through partnership. Br Dent J, 2021. 231,764–768. DOI: 10.1038/s41415-021-3733-1

The four key areas of focus for policy development which were highlighted in the Consensus document were:

1. Effective prevention and management of dental caries and cavities across the life course
2. Addressing caries and cavities risk factors across the life course to fight major non-communicable diseases
3. Integration of primary and secondary prevention across the life course to address the burden of cavities and caries
4. Comprehensive data collection for effective prevention and management of dental caries and cavities

hoped that a South Africa Chapter may be reformed to help in the implementation of the recommendations of this Policy Lab report.

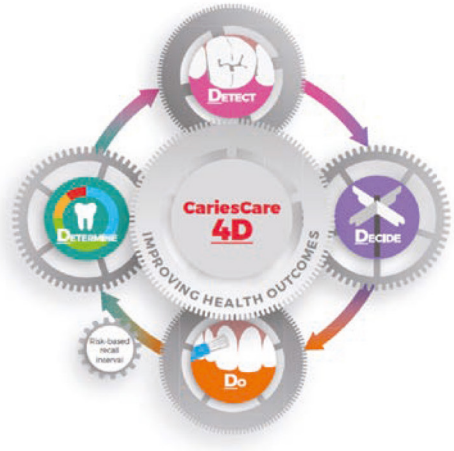
2.4 ICDAS Foundation

Over the last 20 years there has been steady development of tools and knowledge to enable the dental profession to tackle the burden of caries. Beginning in 2002, the International Caries Detection and Assessment System (ICDAS) Foundation started work to harmonise caries detection and assessment across research, education, practice and public health. A key aim of the ICDAS System is to move away from a simplistic assessment of 'no obvious decay' or 'obvious decay' by including histologically validated stages of enamel caries which precede end-stage disease in the dentine and pulp. This system in various formats enables dentists to improve patient care by more precisely monitoring caries development, resulting in more informed diagnosis and care planning.[21] It also helps in the public health domain by giving policy makers a more sensitive estimate of the prevalence of the disease across different age cohorts.

2.5 CariesCare International

The work pioneered by the ICDAS Foundation, aided by ACFF and the Global Collaboratory for Caries Management (GCCM), has also developed into CariesCare International (CCI) which promotes a patient-centred, risk-based approach to caries management. Its practice guide, designed for dental practitioners, is focused on health outcomes with priority given to maintaining oral health and preserving tooth structure.[22] The '4D model' it promotes (shown below), based on the International Caries Classification and Management System (ICCMS™), sets out best-practice for the dental workforce to prevent caries and minimize operative care. This approach was approved

'CariesCare International "4D" cycle'



Determine — Determine patient level risk

Detect — Detect and Assess caries staging and activity

Decide — Decide on a personalised care plan

Do — Do appropriate tooth and patient preserving caries prevention and control interventions

21 Pitts, N., et al., ICCMS™ Guide for Practitioners and Educators. Global Collaboratory for Caries Management, 2014. doi.org/10.5281/zenodo.853106

22 Martignon, S., et al., Caries Care practice guide: consensus on evidence into practice. Br Dent J, 2019.227,353–362. DOI: 10.1038/s41415-019-0678-8.

for use globally by the FDI in 2019, as part of a growing consensus to move towards preventive dental medicine.[23]

In response to the Covid-19 pandemic, CCI's CariesOUT project produced extensive learnings on how to use IT and non-aerosol generating procedures in providing comprehensive care.[24]

CCI also contributes to the education of practitioners and policymakers around the world, helping them understand and consistently use caries-releated terminology – for example, what prevention means to different stakeholders (primary, secondary, tertiary and beyond) and how 'CariesCare' relates to keeping people 'cavity free' (as opposed to 'caries free').

2.6 International Association for Paediatric Dentistry (IAPD)

The 2019 Bangkok Declaration under the auspices of the International Association for Paediatric Dentistry (IAPD) sought to gain worldwide support for an evidence-based definition and a common understanding of the evidence around the aetiology, risk factors, and interventions to reduce ECC, as well as to mobilize collaborative approaches and policies to diminish this chronic disease.

The Declaration (supported by a comprehensive review article[25]) recommends four priorities for multiple stakeholders to act on as shown below.

23 World Dental Federation, Caries lesions and First Restorative Treatment. Accessed 20/02/2025; Available from: https://www.fdiworlddental.org/carious-lesions-and-first-restorative-treatment

24 Caries Care International, Caries Care International. Accessed 01/02/2023; Available from: https://cariescareinternational.com

25 Tinanoff N, Baez RJ, Diaz, Guillory C, et al. Early childhood caries epidemiology, aetiology, risk assessment, societal burden, management, education, and policy: Global perspective. Int J Paediatr Dent. 2019;29:238-248. https://doi.org/10.1111/ipd.12484

2.7 Other developments around the world

Elsewhere globally, there have been encouraging developments in oral health policy development which offer easily accessible lessons for South Africa to draw on.

- The EU-endorsed Childsmile Project from Scotland demonstrates how achieving significant improvements in the proportion of children who are cavity-free can be accompanied by financial savings.
- In the UK, the National Health Service reforms provide for the development of a broader oral health team including oral health educators, hygienists and therapists.
- Sir Michael Marmot's reports on the social determinants of health emphasize how economic disparities create a 'health gradient', where poorer children suffer worse outcomes, meaning that interventions should be universal (available to everyone) but delivered at a scale and intensity proportionate to the level of disadvantage.[26]
- The EXPRESO pilot in France sought to redesign the dental payment system with the aim of shifting treatment intervention to a mixed model, based on capitation and patient-profile elements, thereby encouraging dentists to work with higher-risk populations (this builds on ideas generated at the ACFF Policy Lab 2).[27]

2.8 Oral health strategies in South Africa

South Africa benefits from the recent launch of an oral health policy and strategy which has the following key goals:

- Integrate oral health into general health and NCD strategies at all levels of care
- Outline roles and responsibilities of oral health players at various levels of care and management
- Increase access and equity to oral health services by ensuring these exist at all levels of care (primary, secondary and tertiary).
- Ensure the development of oral health professionals matches the oral health needs and demands of the general population.

This document has been widely welcomed and provides an excellent framework within which progress on oral health promotion and prevention can be pursued at province and local levels.

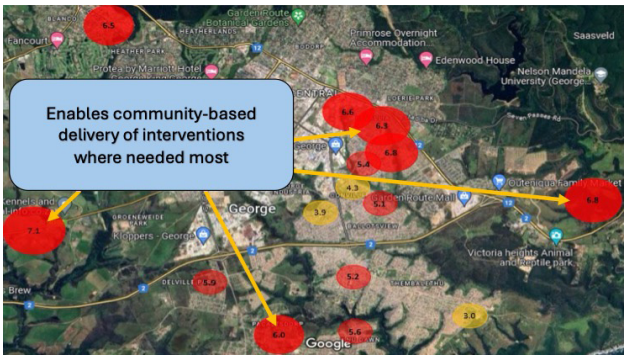
2.9 Examples of provincial-level initiatives

ECC preventive initiative in Western Cape

Given the high level of need and the constraint of available resources, the ECC preventive initiative in Western Cape is focused on prioritising resources on the children who need it most. A dmft assessment of 5-year-olds within crèches (the oldest age you can be sure of having within that setting) has enabled mapping of ECC prevalence by area, identifying those places with the highest rate of onset and progression. This data also provides a baseline against subsequent screenings every 2-3 years which will help evaluate the effectiveness of the preventive interventions used.

For crèches within the targeted locations, the prevention intervention combines supervised toothbrushing with the application of fluoride varnish in areas where there are low levels of fluoride in the potable water (< 0.3ppm).

Mapping of locations in-and-around George, WC, with highest levels of need



A number of success factors have been identified for the initiative:

- having a clear strategic direction (and political will) which has been achieved by signing off a 5-year Western Cape Oral Health Disease Prevention Strategy that aligns with national strategy and plans
- using an evidence-based approach that focuses on the effectiveness of the preventive interventions (for example, the fluoride varnish is to be applied 3-4

26 https://journals.sagepub.com/doi/full/10.1177/1403494817717433

27 Ministère des Solidarités et de la Santé. Expérimentation prevention et intervention minimale en santé orale (EXPRESO). Journal Officiel de la République Française, 2021.0068.

times a year as otherwise it is known to be much less ineffective). This focus on how positive change can be guaranteed differentiates it from oral health promotion

- ensuring strong local buy-in and community-based delivery. It is essential to work with the existing workforce, looking beyond the oral health workforce to involve other stakeholders. So, while a group of 53 oral hygienists are primarily responsible for delivering the interventions, community health workers and primary health nurses also play a role in talking with mothers and carers as well as handing out toothbrushes and paste. This, it is believed, results in sufficient workforce capacity for the initiative to be delivered at a scale which can deliver results
- ensuring effective co-ordination and standardisation of the services district-by-district to ensure implementation. This involves regular local meetings to drive motivation of people, monitoring and evaluation
- putting in place enough training (for example, on dmft screening) to build confidence and commitment amongst staff
- securing funding, especially in the medium- to longer-term, which is made possible with good planning that demonstrates a link to policy priorities.

ECC preventive initiatives in Gauteng

The Gauteng ECC preventive initiatives have also resulted in increased access to public oral health services and point to a number of lessons for wider opportunities across South Africa:

- The Integrated School Health Program (ISHP) is expected to have delivered around 80,000 fissure sealants of the first and second molars in 2023/24 to children across more than 1,300 crèches (an increase of around 50% on the previous year)
- The Mother to Child Health Program (MCHP) involves oral hygienists working in antenatal and postnatal clinics, focusing on nursing bottle syndrome and compliance with the Road-to-Health booklet
- Partnerships in relation to nutrition and environmental health offer dietary advice to crèches and primary school tuckshops and vendors
- Other partnerships include working with the Smile Foundation (to deliver cleft lip/palate programs and oral health awareness campaigns) and the Nelson Mandela Children Hospital (to access theatre resources for child oral health operations).

3 The Policy Lab: Designing innovative pilots to make a measurable impact on caries prevention and care for children aged 0-6 in South Africa

To think through how best to make progress in tackling the 'caries challenge' amongst children aged 0-6 in South Africa, a Policy Lab was run in Cape Town in January 2025.

A Policy Lab is a collaborative workshop that brings together diverse stakeholders, informed by evidence, to make a breakthrough on a particular problem. They are designed as fast-paced and interactive events that make the most of experience within the group. Participants were drawn from across South Africa, including dental and other health professionals and practitioners, government representatives, schools and crèches, and academics.

The overarching question for the Policy Lab was:

Building on the best available evidence and practice, how can a small number of innovative pilots, focused on measurable impact in caries prevention and care for those aged 0-6, be designed and implemented with a view to sustainable national rollout?

The Policy Lab was hosted by the ACFF with input from a local Planning Group of experienced individuals. The event was facilitated and written up by a team from ACFF Global, who had been involved in designing and running previous Policy Labs, including one in Canada towards the end of 2022.

Run over 24 hours, the Policy Lab process enables those taking part to steadily build a set of ideas together both during the formal parts of the workshop and through informal conversations. The process follows a 'decision diamond flow' as shown. This focuses the group on the overarching question, brings in a variety of inputs and exercises to broaden out the perspectives, before distilling key insights that are then drawn together and assessed to create a set of practical proposals for action.

At the start of the event, there was a high degree of confidence amongst most participants that progress could be made despite the challenges that have continued to make caries in young children such a persistent problem. Participants were encouraged by the range of stakeholders represented and the skills, experience and motivations that these different perspectives were able to bring to designing a set of innovative pilots. This reflects ACFF's commitment to taking into account the needs and interests of all stakeholders in pursuing successful and sustainable change (as shown in the Win6 Cube below).

It was also acknowledged that getting any pilots into practice would need a shift in mindset amongst all those who would have a role to play in implementation. Those taking part believed that this was a group of people that could work together to make that happen!

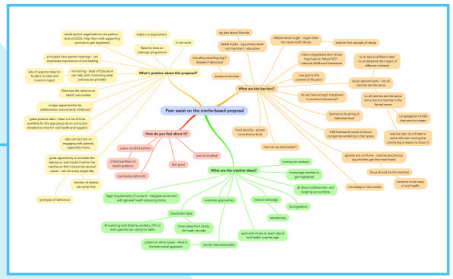
Very positive feedback at the end of the event showed that this hope had been turned into a set of relationships, conversations and pilot proposals that can now be built on to make a tangible impact on the health and wellbeing of young children in South Africa.

South African Oral Health Policy Lab attendees

The diagram below shows the different stages of the workshop as it moved through the diamond flow.

Reviewing the current position and undertaking a 'peer assist' process on the crèche-based intervention

- What is particularly striking or surprising about the information in the briefing pack?
- What recent developments or other information do you know of that would be good to share with the rest of the group as we start the session?
- What questions would it be helpful to explore during the rest of the Policy Lab?
- What is positive about the crèche-based proposal, why is it likely to work? What are the barriers and how could these be overcome?

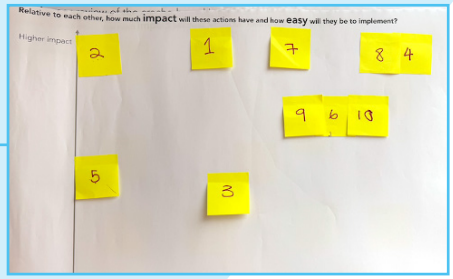


Identifying other opportunities for change

- What are the lessons from developments internationally that show how progress might be made in South Africa?
- How do the impacts of previous Policy Labs point to opportunities in South Africa?
- What is happening in South Africa that can be built on?

Generating a long list of potential ideas for action

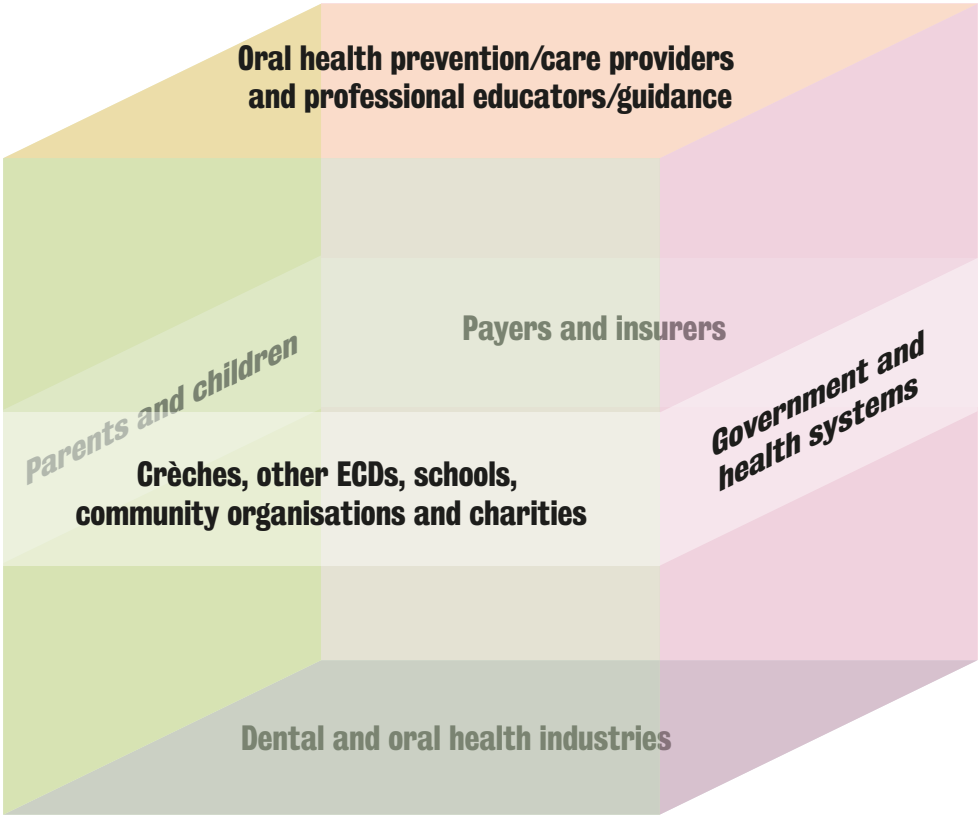
- Based on the ideas so far, what pilots could be designed to maximise the impact on caries prevention and care in children aged 0-6?
- How much impact would these pilots have relative to each other?
- What other supporting policies or cross-cutting actions would contribute to better oral health for children aged 0-6?



Working up a short list of pilot proposals

- **Why** are we doing this (the main aims of this pilot)?
- What will the pilot involve (nature and scale of the intervention)?
- Where will it be run (which local setting, which provinces, etc)?
- Who needs to be involved (instigating, delivering, evaluating)?
- How will we overcome the barriers to implementation?
- Which measurements will determine impact and sustainability?
- When will this happen (timeline to implementation and evaluation)?

The needs and interests of different stakeholders presented using the ACFF's Win6 Cube:



SIDE 1 – Parents and children
Having the knowledge and resources to help children avoid the harms of ECC and other diseases

SIDE 2 – Oral health prevention/care providers and professional educators/guidance
Having a sufficient oral health workforce (dental and other staff) with skills based on the best available evidence

SIDE 3 – Payers and insurers
Having cost-effective improvement in prevention, service delivery and outcomes

SIDE 4 – Dental and oral health industries
Having opportunities for innovation, brand building and corporate social responsibility (CSR)

SIDE 5 – Government and health systems
Having national policy and strategy implemented for 'joined-up' health improvement across government departments

SIDE 6 – Crèches, other ECDs, schools, community organisations and charities
Having healthy children who do not suffer from the burden of tooth decay and other NCDs

4 The ingredients for long-term sustainable reductions in ECC

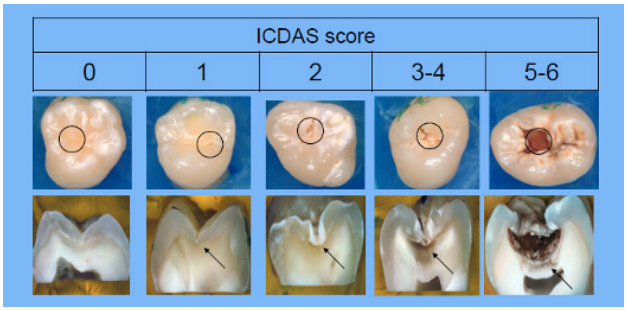
4.1 Begin by recognising that ECC prevalence in South Africa is being undermeasured

Caries in very young children is hidden if only open cavities are measured (as is done with the WHO basic methods assessment). The ICDAS assessment system allows the real picture to emerge by using a more detailed examination based upon the true histological extent of caries.

ICDAS codes and histological extent of caries

ICDAS
(International Caries Detection and Assessment System)

0		Sound tooth surface
1		First visual change in enamel
2		Distinct visual change in enamel
3		Localized enamel breakdown due to caries with no visible dentin
4		Underlying dark shadow from dentin (with or without enamel breakdown)
5		Distinct cavity with visible dentin
6		Extensive distinct cavity with visible dentin.

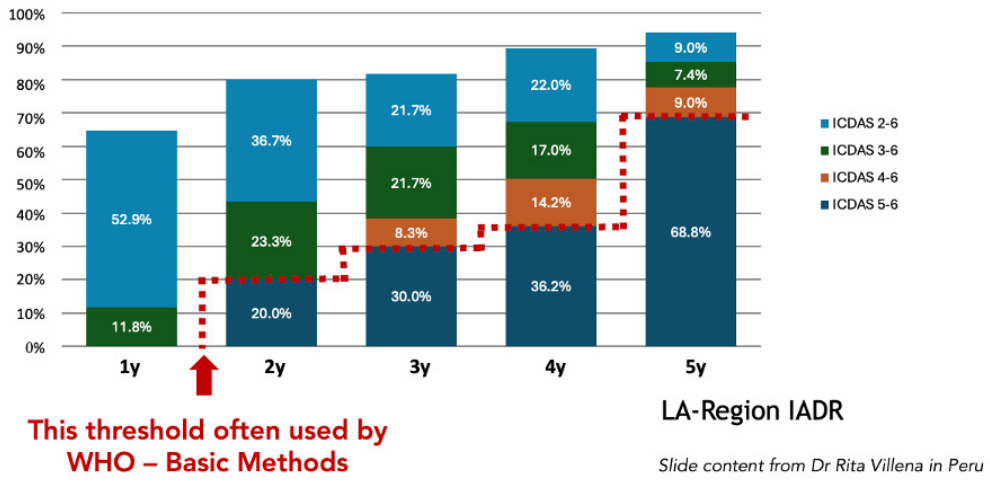


Images provided courtesy of Dr Andrea Ferreira Zandona, University of Indiana (at that time)

Using this approach, evidence from other countries (see example from Peru below) suggests the initial stages of caries disease is often well-established in 2-, 3- and 4-year-olds such that the opportunity for prevention and control of pre-cavitation lesions may already be lost if interventions only start at 5-6 years of age.

These and other results suggest that a prevalence rate in South Africa at age 4-5 of 50% using WHO Basic Methods would translate in reality to more than 80% of children having some stage of caries disease.

ECC prevalence in Latin America based on ICDAS assessment compared with WHO Basic Methods (Peru as an example)



Slide content from Dr Rita Villena in Peru

4.2 The high ECC prevalence rates amongst children aged 0–6 in South Africa points to the need for a model of earlier intervention with follow-up

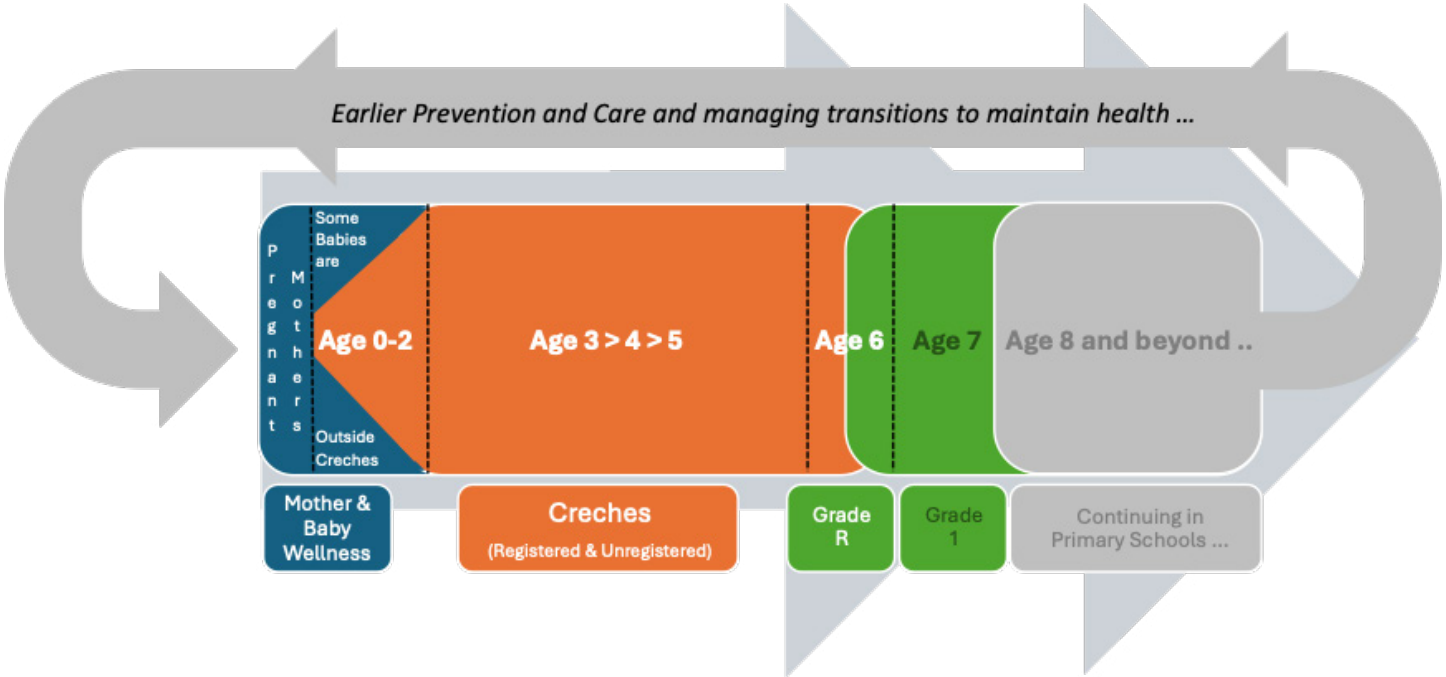
As so many children in South Africa are reaching school with caries disease already well-established, it is imperative that interventions at younger ages are developed. The Policy Lab used the model below to show where this might happen. This highlights the need to:

- engage with pregnant and new mothers to influence the prospects for their babies and very young children
- work with crèches to reach 3-5-year-olds in order to control early disease (some 0-2-year-olds will also be in these settings as well as some Grade R-age children)
- offer continued support to children arriving at school (6-year-olds onwards) as it is critical not to see oral health decline because of the transition to a new educational setting.

4.3 Pilots that could lead to sustainable reductions in ECC require a number of ingredients

For earlier intervention to have a sustainable impact in reducing ECC, it will also require:

- leveraging relevant international (for example, WHO), national and provincial strategies to cement oral health as a part of general health programs
- integration with other health and education initiatives (for example, hygiene and nutrition) as well as prenatal and maternity staff in hospital and community settings (for example, Baby Wellness and PHC clinics)
- development of ways to measure current prevalence baselines, monitor progress and evaluate interventions that are affordable and scalable
- expanding workforce capacity and capabilities to support oral health (for example, through training of non-dental professionals as well as accessing the resources of private dentistry where available)
- use of technology wherever feasible to improve access to oral health services (for example, using teledentistry), improve the delivery of support (for example, more consistent information) and assist with monitoring and evaluation (for example, in relation to caries measurement and heath record documentation)
- broad-based communication to reach parents, communities and professional stakeholders to persuade, motivate and support them in working to improve the general as well as oral health of young children.



4.4 Policy Lab participants considered an initial crèche-based proposal for planned prevention to target primary dentitionn

Early childhood development (ECD) refers to children's physical, cognitive, linguistic, social, and emotional development from birth to 8 years of age. It is considered a critical phase in a child's development because it sets the foundation for future learning, health, and well-being.[28,29]

ECD centres provide early learning and development programs for children from birth to 5-years-old. The bulk of ECD centres are crèches, providing a very varied mix of childcare, early socialisation and education depending on their set-up, although ECD learning programs can also be delivered in other settings (for example, home-based providers or community centres).

There are approximately 42,000 crèches for children under-5 in South Africa.[30] Amongst these, registered crèches must comply with a combination of Department of Basic Education standards and local municipal by-laws that regulate the care and education provided (for example, age-appropriate curriculum and teacher/carer qualifications).

Many crèches though are not registered, either because they are unable (or choose not) to do so or because of challenges in getting through the registration process. Not having formal recognition can impact on the funding, oversight and quality of unregistered crèches.

Given their scale and role, crèches are an ideal place to target children with planned oral health disease prevention in a structured setting where regular monitoring is possible. The potential interventions that a program focused on crèches could deliver are shown in the table below (along with the type of professionals who can play a role in this and how different indicators could be monitored over time).

Potential delivery and monitoring of crèche-based interventions for children aged 0-6

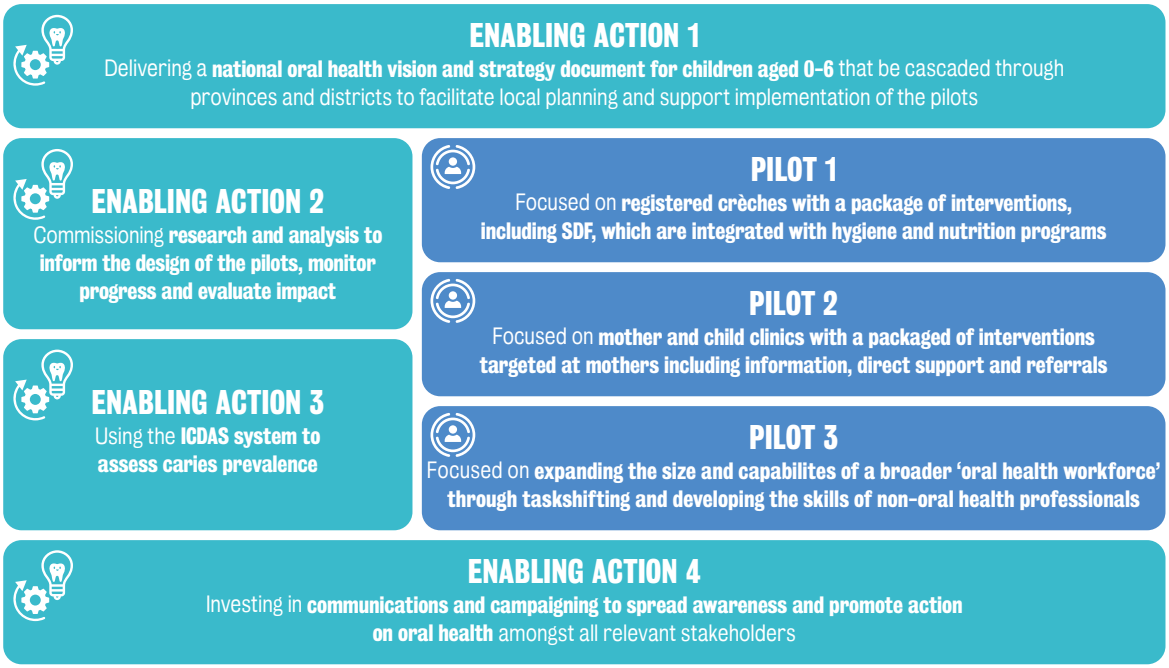
	Intervention	Resources	People	Indicators	Monitoring timelines
1	Daily Brushing	Toothbrushes, Toothpaste	Staff from crèche oral health (OH) professional	• Baseline Plaque Index (PI), Gingival Index (GI) • dmft assessed using survey/ ECC tools from ICDAS • pufa	• PI, GI - 6 months • dmft/pufa - 12 months
2	Body hygiene: washing hands, tooth brushing, hair & nail hygiene	Toothbrushes, Toothpaste, hair brush, nail clippers, soap	Staff from crèche OH professional	• Baseline PI, GI, • dmft assessed using survey/ ECC tools from ICDAS • pufa	• PI, GI-6 months • dmft/pufa - 12 months
3	Daily Brushing with diet analysis of weekly feeding	Toothbrushes, Toothpaste	Staff from crèche OH professional or dietician	• Baseline PI, GI, • dmft assessed using survey/ ECC tools from ICDAS • pufa • Sugar content of daily meals	• PI, GI - 6 months • dmft/pufa - 12 months • Diet analysis - 3 monthly
4	Any of the above with treatment (for example, Fluoride varnish and Atraumatic Restorative Treatment (ART)?)		OH professional or dietician		
5	SDF (Silver Diamine Fluoride)	SDF material	OH professional or nurse	• dmft assessed using survey/ ECC tools from ICDAS • pufa	• dmft/pufa -12 months

28 Atmore, Van Niekerk & Ashley-Cooper 2012

29 Bekir 2020

30 South Africa ECD Census (2021) referenced by Matshidiso V et al, 2024

5 The proposed pilots for immediate progress



Policy Lab participants proposed three pilots for immediate development:

- **Pilot 1** focused on registered crèches with a package of interventions, including the application of Silver Diamine Fluoride (SDF), which are integrated with hygiene and nutrition programs.
- **Pilot 2** focused on mother and child clinics with a package of interventions including information, direct support and referrals.
- **Pilot 3** focused on expanding the size and capabilities of a broader 'oral health workforce' through taskshifting and developing the skills of non-oral health professionals.

A number of cross-cutting enabling actions were also identified:

- Delivering a national oral health vision and strategy document for children aged 0-6 that can be cascaded through provinces and districts to facilitate local planning and support implementation of the pilots.
- Commissioning research and analysis to inform the design of the pilots, monitor progress and assess impact (including baseline data gathering, regular monitoring and periodic evaluation).
- Using the appropriate formats of the ICDAS system for this age-group to assess caries prevalence and monitor disease progression over time.
- Investing in communications and campaigning to spread awareness and prompt action on oral health amongst all relevant stakeholders.

For each proposed pilot, consideration was given to:

1. **What** will the pilot involve (nature of the intervention / scale)?
2. **Why** are we doing this (the main aims of this pilot)?
3. **Where** will it be run (which local setting, which provinces, etc)?
4. **Who** needs to be involved (instigating, delivering, evaluating)?
5. **How** will we overcome the barriers to implementation?

The remainder of this section considers each of the pilots and cross-cutting enablers in turn.

5.1 Working with registered crèches to deliver a package of interventions, including the application of SDF, which are integrated with hygiene and nutrition programs

What will the pilot involve (nature and scale of the intervention)?

This pilot was prioritised by Policy Lab participants and involves working with ECD centres (specifically registered crèches) to deliver a package of oral health interventions:

- Supervised brushing using high-quality fluoride toothpaste
- Applying SDF 3-4 times a year
- Encouraging behavioural change amongst teachers and children by integrating good oral health habits (for example, twice daily brushing, avoidance of sugar, etc) into existing body hygiene (for example, hand washing, hair and nail hygiene) and nutrition programs. This will help demonstrate how oral health is a key part of general health and will push oral health behaviour change through broader health education and promotion.

Why are we doing this (the main aims of this pilot)?

Working with registered crèches offers access to children under the age of 6 so that oral health interventions for this group can be run within an organised setting that can facilitate consistent delivery and assessment of impact.

This will:

- Enable steps to cap the disease process before it progresses
- Involve parents earlier in the oral health of their children
- Strengthen the work of current general and oral health programs
- Socialise good oral health behaviours at a young age
- Enable outcomes and impacts to be readily measured
- Open up opportunities for collaboration with non-oral health workforces (for example, ECD managers, teachers, community nurses, etc).

Where will it be run (which local setting, which provinces, etc)?

While there are some arguments to include unregistered crèches in the pilot (for example, to reach some of the most disadvantaged children), on balance it was agreed to focus initially on registered crèches as these:

- operate within a more structured system and can be approached through the ECD directorates at province level
- follow a more regulated teaching curriculum, including participating in hygiene and nutrition programs
- provide food menus prescribed by guidelines.

Some crèches are also linked to primary schools, so this will allow the pilots to explore how positive impacts from the planned interventions are sustained as children transition in the school environment at age 6 and beyond.

It would be ideal to run the pilot across a number of crèches in all provinces, as a national program will raise awareness of the importance of oral health in children aged 0-6. It will also help build significant momentum in introducing new capacity and resources to support oral health in young children and, crucially, help rapidly build the evidence base for the package of interventions that are tested.

To help make the resulting evaluation as comprehensive and robust as possible, it would be good to enrol pilot sites that represent a range of characteristics (for example, size, extent of deprivation, links to primary schools, rurality, etc).

Who needs to be involved (instigating, delivering, evaluating)?

Planning and delivering this pilot will involve:

- National oral health leaders to initiate the program at national level (see later enabling action for the development of an oral health vision and strategy for children aged 0-6)
- ECD Directorate within provinces
- Leaders in oral health at province and district levels
- Selected crèche owners and managers
- Those who will deliver the interventions within the crèches (for example, teachers, oral health professionals and other health professionals)
- Universities involved in research and analysis.

How will we overcome the barriers to implementation?

Barriers to implementing the pilot can be overcome by:

- Training crèche staff to improve knowledge of oral health harms and the benefits of tackling this in young children
- Encouraging staff and parents to participate by building wider community buy-in and partnering with social service organisations to organise meetings with parents on the importance of oral health (see later enabling action on communication and campaigning)
- Integrating the package of oral health interventions with hygiene and nutrition programs (so that the marginal time and effort to deliver these is kept to a minimum), including using non-oral health staff to help deliver the interventions where feasible and appropriate
- Seeking funding for SDF applications by referencing SDF as a WHO 'essential medicine' and also one of WHO's 'best buys' from an economics perspective
- Offering incentives to creche owners, managers and parents by creating referral pathways for treatment if disease is detected and needs treatment (and possible support with travel too if budgets can be made available)
- Enhancing the oral health sections in the Road to Health booklet (for example, adding more information on good practice and making it easy to monitor and record progress)
- Model and socialise good oral health behaviours every day to ingrain habits (for example, brushing in small group sessions or making fun and competitive through games)
- Ensuring the brushing is always done on-site and supervised, with storage for resources to ensure children do not lose (or share) brushes and paste
- Cascading assessment capabilities using the ICDAS system using a train-the-trainer approach across the country (see later enabling action on ICDAS training with support from WHO or other international partners via ACFF)
- Assisting crèches to partner with schools where they do not already do this to access skills/resources.

5.2 Working with mother and child clinics to deliver a package of interventions targeted at mothers and carers including information, direct support and referrals

What will the pilot involve (nature and scale of the intervention)?

This pilot specifically focuses on mothers in the very earliest stages of their child's life to improve knowledge around oral health and ingrain positive oral health habits. The intervention will involve:

- reaching mothers and children as they visit mother and child clinics and maternity clinics regardless of whether these settings specifically offer dental services
- using assessment tools (for example, the ICDAS system) to chart caries prevalence and record this in a revised version of the Road to Health document
- delivering oral health educational and promotion information and practicing good routine
- having referral systems in place so that, following assessment, children can be promptly treated at a dental facility if appropriate.

Why are we doing this (the main aims of this pilot)?

Mothers of children aged 0-6 represent a 'target market' who can play a central role in creating awareness of the importance of oral health at a very young age, share oral health prevention and care information with their child and help them practice good oral health habits before the disease starts (for example, avoiding 'nursing bottle syndrome' and starting regular brushing).

Reaching out to mothers and their children during visits to mother and child clinics takes advantage of existing interactions with healthcare (for example, when visiting for planned vaccinations) and is an opportunity to provide them with the knowledge and skills they need even before their children's teeth are present.

These visits also offer the chance to challenge existing myths regarding oral health and build the aspiration that their children (like those of most dentists) can avoid caries and the harms ECC will bring.

Where will it be run (which local setting, which provinces, etc)?

It is proposed that the pilot be run in a combination of mother and child clinics and maternity clinics in two provinces, one more rural in nature (Western Cape) and one more urban (Gauteng).

Who needs to be involved (instigating, delivering, evaluating)?

Implementation of the pilot will require the agreement and input of:

- the Departments of Health and Basic Education in both provinces
- dental and oral health professionals either to deliver the interventions or to train non-oral health staff in doing so
- clinic nurses (for example, immunization staff) to pass on information or do some of the skills development around good oral health habits
- private companies to provide materials (for example, toothbrushes and paste) and potentially some of the educational resources
- community leaders/forums to promote oral health, encourage mothers to attend and participate in the program and (especially in rural communities) to help get mothers to the relevant clinic facility.

How will we overcome the barriers to implementation?

Barriers to implementing the pilot can be overcome by:

- ensuring continuity of support given that mothers do not always attend the same clinic or see the same health professional. This could include training staff in the importance of how to fill out the oral health component in the Road to Health booklet (especially if this is expanded to include caries charting and recording of other relevant measures and outcomes) and ensuring this information is made available to the next health professional the mother sees (for example, by linking with the MomConnect program to communicate information between parties and send reminders through SMS/WhatsApp)
- linking to other programs to access additional preventive measures (for example, fissure sealings via ISHP)
- using the ICDAS assessment data both to refer children for further support (where needed) and to collate this centrally to undertake monitoring and evaluation of the pilot
- oral health practitioners educating all relevant staff who will be involved in sharing information or working with mothers and children on good oral health practices.

5.3 Expanding the size and capabilities of a broader 'oral health workforce' through taskshifting and developing the skills of non-oral health professionals in nurse-led community health worker teams

What will the pilot involve (nature and scale of the intervention)?

This pilot would involve working with nurse-led community health teams (separate to the mother and child clinics discussed above) to enable them to take on primarily non-invasive activities such as education, prevention and promotion that would typically be done by dental or oral health professionals.

Why are we doing this (the main aims of this pilot)?

Harnessing the capacity, networks and existing patient and public relationships that community health worker (CHW) teams already possess would instantly increase the reach of oral health services into the population. There are novel opportunities to expand the work of these teams that are not currently utilized, especially in relation to acting as educators and integrating oral health into general health programs.

Where will it be run (which local setting, which provinces, etc)?

The proposal is to run pilots in a rural district of Western Cape and in Gauteng (where work is already underway to evaluate the work of community health teams).

Who needs to be involved (instigating, delivering, evaluating)?

Implementation of the pilot will require the agreement and input of:

- Team leaders in nurse-led CHW teams
- Coordinators of oral health in the relevant districts
- Oral health professionals capable of training CHW and Expanded Program on Immunization (EPI) nurses in oral health education and prevention
- Oral health champions trained to lead community campaigns, promote oral hygiene, and reduce dental inequalities
- ISHP trained teacher assistants.

How will we overcome the barriers to implementation?

The main barrier will be building trust, buy-in and motivation amongst CHW teams that are not currently providing oral health services. This can be done through:

- communication and meetings to show the scale of need and stimulate initial interest in being part of this pilot
- demonstrating how oral health education and disease prevention can make an immediate and significant impact on the lives of children aged 0-6
- co-creating a clear plan that is based on providing CHW teams with the necessary skills and resources to deliver the intervention effectively and efficiently with the capacity they have.

5.4 Development of a national oral health vision and strategy document for children aged 0-6 that can be cascaded through provinces and districts to facilitate local planning and support implementation of the pilots

A national oral health vision and strategy document for children aged 0-6 will help raise awareness of the goal of tackling ECC, get buy-in from all necessary stakeholders to establish the pilots locally and help ensure a standardised oral health strategy and planning approach district-by-district.

The work to develop this document (for example, the evidence collated, and the relationships built) can also be used to make the economic argument for allocating more funds to oral health in younger children.

This document should set out a shared vision for how better oral health can be achieved for children aged 0-6. It will describe:

- Why this focus on children aged 0-6 is happening
- What success will look like (for example, in terms of reduced caries prevalence, fewer dentectomies, improved child health and wellbeing etc)
- How this vision and strategy can cascade down through provinces and districts to the local level
- A roadmap to guide the implementation of pilots and enabling actions, setting out the various stages to get the various pilots working, the different interventions that can be used (for example, in EDC centres or baby wellness and maternity clinics) and what needs to happen 'on the ground' to overcome local barriers
- How monitoring and impact assessment can be supported.

Involving representatives 'bottom-up' from all levels will be an important success factor in getting buy-in across the country from those who will be called upon to act on the vision and strategy. As such, the drafting of the document should involve:

- the Chief Dentist (for a national perspective and aligning with other policies)
- oral health professionals and researchers (for evidence and leadership)
- dental managers/coordinators at province level (for linking to existing programs and available resources)
- the ECD directorate with the Department of Education (for permission to work through crèches and experience of how to implement programs across them)
- other health professions, including health promotion experts (for deas on how they can contribute to delivering the strategy)
- representatives of crèches, mother and child clinics and schools (for insights on how to implement on the ground and support children through transitions)
- oral health representatives from WHO if available (for supporting evidence and examples of good practice in other countries)
- ICDAS experts (for running local 'train the trainer' programs to cascade skills to local levels).

There are two main barriers to overcome. First is getting buy-in from the range of stakeholders across different provinces and districts. While the backing of those directly involved in oral health services should hopefully be relatively straightforward, the permission and cooperation of ECD directorates will be needed and nursing colleagues should also be involved (working through their professional hierarchy and decision-making process). Involving the WHO at Regional level in the drafting of the document, if possible, should provide additional credibility and profile.

The second challenge would be ensuring the document is taken up widely and acted upon. This will require effective dissemination to all relevant parties, including a program of meetings followed by a cascading program of meetings at provincial, district and local level. The positive experience in Westen Cape shows how convening meetings at district level can help share information, build common understanding and agree steps and responsibilities towards implementation.

While the process of cascading the strategy and planning for its implementation can seem complicated at first, once the process starts people "feel part of something bigger" making them open to the responsibility they are being given and encouraging them to share ideas in building local plans and putting these into action.

5.5 Commissioning research and analysis to inform the design of the pilots, monitor progress and assess impact (including baseline data gathering, regular monitoring and periodic evaluation)

All of the pilots require data for their successful design, delivery and evaluation. As the proposals were being developed during the Policy Lab, it was evident that much of this data would be identical or very similar, both in terms of what gets measured and also the timelines for monitoring and evaluation. Consequently, it would make sense to commission a single program of research and analysis to inform the design of the pilots, monitor progress and assess impact.

The table below shows some of the suggested measures that could form part of the program.

Example measures for baseline, regular monitoring and periodic evaluation

Oral health status	• Caries prevalence and severity across target groups/settings • Level of demand for oral health services amongst children aged 0-6 (for example, number of dentectomies) • Other oral health measures (for example, Pufa, Plaque Index and Gingival Index)
Intervention delivery	• Progress against key milestones (for example, agreement to deliver pilots in selected Provinces/Districts) • Number of participating settings (for example, registered crèches, mother and child clinics) • Appointment of a program champion within crèches and clinics • Number of staff willing and trained to participate in delivering the pilot interventions • Amount of information materials (for example, information booklets) and other resources (for example, toothbrushes and toothpaste) distributed • Use and completeness of Road to Health booklets • Proportion of children and/or households covered (for example, by community health working teams delivering oral health promotion and prevention) • Awareness of the pilots and enabling actions across the health and education workforce more generally • Use of digital tools and other measurable support resources
Beliefs and behaviours	• Oral health knowledge and skills of workforce • Oral health knowledge of mothers/carers • Assessment of behaviours (for example, regular brushing, sugar content of daily meals)

5.6 Using the ICDAS system to assess caries prevalence

Policy Lab participants agreed that using the ICDAS system in addition to WHO Basic Measures would give a more accurate assessment of caries prevalence across children aged 0-6 while still allowing production of WHO Basic Methods data).

Getting widespread use of the ICDAS system will require a range of steps to be co-ordinated, including:

- exploiting the free on-line resources made available for general ICDAS training[31]
- getting training (already agreed) from those in Latin America (and elsewhere) who have learned over recent years how to cascade training about how best to use ICDAS criteria and examinations with babies and young children
- developing additional tools and resources (for example, simple diagrams, language translations, etc.) to overcome barriers to adoption
- partnering with the South African dental schools to ensure that there is an academic grounding for the adoption of these methodologies
- extending the training of dental therapists, hygienists, dental nurses and general nurses so they understand the ICDAS staging for dental caries
- raising awareness of ICDAS measurement of caries amongst dental public health groups and policy makers.

5.7 Investing in communications and campaigning to spread awareness and prompt action on oral health prevention amongst all relevant stakeholders

Getting backing for the pilots and encouraging the participation of the necessary stakeholders (from government departments to local crèches and clinics, and across the workforce and communities) will rely on communication and campaigning that is both effective in driving sustainable behaviour change and feasible given the resources available.

Agreeing consistent messages and supporting information

The first step will be to agree the set of messages that will be consistently promoted to different audiences and the information that needs to accompany this (whether to persuade or to help people take action).

The messages will focus on:

- Shifting beliefs and attitudes (for example, keeping teeth is important, losing teeth is painful and causes long-term harms, tooth decay can be stopped or prevented, early intervention amongst children aged 0-6 is critical)
- Enabling accessibility to the pilots and supporting participation (for example, explaining how to take part, gathering consent, providing follow-up routes to dental care)
- Imparting knowledge that teaches or trains the workforce, mothers, other carers and children in key skills (for example, toothbrushing, diet management, caries assessment).

Tailoring the content to different audiences

The agreed messaging and materials will need to be adapted to reach and resonate with different audiences. What works for oral health professionals will not work for teachers, carers, community health workers. For children, mothers, families and local communities in particular, the content needs to be tangible and relatable. It also needs to be culturally-specific, adapting to community language and practices.

There are a variety of methods that can be used to make sure the messages get through and are acted on:

- Visual storytelling and cartooning
- Infographic-style content
- Real-life examples of successes
- Personal testimonials, advice and recommendations.

In designing and planning what gets produced, it would be desirable to integrate some of the messaging and information sharing on oral health with the communication done for other programs (for example, body hygiene or nutrition), possibly with a view to creating a consolidated set of content that makes it easier for mothers, care givers and children to find all they need in relation to these health and hygiene practices.

31 see https://icdasfoundation.com/ and https://www.iccms-web.com/

Communicating using a mix of media and channels

There are now far more communication channels to reach particular audiences, many of which offer a very effective and affordable way of spreading targeted messaging. These include:

- Digital and social media platforms (for example, Facebook, Instagram, WhatsApp) using multi-media tools such as videos, podcasts, games or interactive quizzes
- Traditional formats such as print and radio (for example, engaging local radio stations and community newspapers to broadcast oral health messages and success stories) which could be especially important in rural areas, or where there is no electricity or access to the Internet is unreliable
- Community outreach (for example, local events such as health fairs, open days at crèches, interactive demonstrations at stores).

Making best use of existing content and capabilities

While reaching the different audiences with relevant and compelling content will need some investment, a lot of the required knowledge and skills is already accessible within networks of oral and public health experts. The challenge will be to combine this in a quick and affordable way with those who bring an understanding of the specific audience characteristics and those with the required communication and content creation capabilities.

This effort could start with an initial review to identify content that already exists or could be readily adapted, resisting the temptation to start from scratch and 'reinvent the wheel'. It could also involve looking beyond South Africa to content, media or digital platform providers that can offer cost-effective solutions to help get the communication and campaigning effort off the ground.

6 Suggestions for supporting policies and other actions

In addition to the pilot proposals and enabling actions, Policy Lab participants identified other potential changes that should be considered in improving the oral health prevention and care in children aged 0-6.

- Improve the oral health section in the Road to Health booklet (for example, provide better guidance to practitioners on what to look for, which things to measure progress on and how to intervene if problems are identified). **This is a critical action to support all of the pilot proposals**
- Push for a focus on oral health to be a requirement of the overall ECD program. This could include streamlining the registration process and providing incentives for crèches to register in order to access support from health initiatives
- Develop economic evidence to increase the priority placed on oral health as part of overall health planning with the aim of securing more funding for oral health over the medium- to longer-term. This includes positioning oral health itself as a social determinant of health and other life outcomes and quantifying the costs incurred where oral health is not maintained
- Promote a more stratified approach to oral health promotion and disease prevention, optimising the use of resources at primary, secondary and tertiary levels
- Explore the possible use of 'hub-and-spoke' dental clinic models where centralized paediatric dental services at district hospitals take referrals from public health clinics
- Include oral health and disease prevention in the training of nurses, teachers and medical students in their paediatrics course
- Standardize key elements of the oral health teaching curriculum in dental schools and provide specialized training for dental clinicians in paediatric dentistry
- Secure greater availability of discounted toothpastes and toothbrushes for families, grading the level of discount towards the most disadvantaged
- Run a national oral health mascot competition to raise awareness of oral health amongst children (this could be sponsored to run in schools)
- Investigate ways to provide potable fluoridated water to more of the population.

7 Next steps

7.1 Developing a timeline for advancing the pilots and enabling actions

Policy Lab participants shared an ambition that the proposed pilots and enabling should be pushed forward as quickly as possible. In working out how best to do that, it is notable that the pilots and enabling actions share many common elements, for example:

- commissioning the necessary research and analysis capacity to undertake baseline research as well as ongoing monitoring and evaluation
- engaging with stakeholders such as the Departments for Basic Education and Health
- getting buy-in from provinces and local teams
- rolling-out training on the ICDAS system training and undertaking baseline research to assess caries prevalence
- accessing necessary resources (such as toothbrushes, toothpaste and SDF)
- creating a common set of communication materials tailored to different audiences.

This means that it would make sense to develop an integrated timetable that ensures proper alignment, prioritises the use of resources and avoids duplication. Realistically, this would involve undertaking the initial planning and preparatory work during the rest of 2025 with the aim of launching most or all the work (and especially the crèche-based Pilot 1) by the start of term in February 2026.

There may be some things which can move more quickly, such as planning for Pilot 1 (the crèche-based intervention) in Western Cape, where a prevention initiative focused on this is already in place. Equally, the existing work on the role of CHW teams in Gauteng lends itself to making rapid progress on Pilot 3 (the expansion of the oral health workforce by taskshifting amongst non-oral health staff).

7.2 Creating a working group to take forward the work, possibly through reforming the South Africa Chapter of ACFF

Developing an integrated timetable and then co-ordinating and pushing the work that follows, will need leadership and capacity for organising. We hope that the initial follow-up from the Policy Lab can be steered by the Planning Group that helped with its design and running but very quickly this will need to find a more formal and better-resourced 'home'.

One option would be to reform the South Africa Chapter of ACFF as a vehicle for facilitating the pilots. This would offer the chance to bring together a coalition of stakeholders across research, policy, the oral health industry and professional practice, all with a collective focus on prevention and a desire to see the proposed ideas into reality to make a measurable difference for children aged 0-6 as soon as possible.

7.3 Exploring potential sources of funding

Undoubtedly accessing additional financial support for one or more of the pilots and enabling actions would help speed implementation. This could be done by:

- collaborating with philanthropic funders such as the Discovery Foundation or Mutepa Foundation
- demonstrating how the proposals align with WHO priorities and the delivery of government policy
- assembling evidence on how investing in improving oral health outcomes in South Africa is cost-effective in reducing the overall burden on government spending and resources.

7.4 Showcasing progress at the IAPD Conference

The annual IAPD conference will be held in Cape Town during October 2025 with a focus on 'Refresh. Refocus. Renew'.[32] Getting on the program for this would provide both a high-profile opportunity to present the Policy Lab, progress since the Policy Lab and offer the opportunity to engage with many of the relevant stakeholders who are critical to the future success of efforts to reduce the harm caused by ECC in South Africa.

32 https://iapd2025.org/

Glossary of Key Terms

This glossary defines how the terms are used in the context of this report. It does not aim to provide an update to already existing definitions.

ART

Atraumatic Restorative Treatment - preparation and filling of cavities with hand instruments and minimal tissue removal.

CAVITY

A tooth with caries that has progressed far enough to produce a collapse in the integrity of the outer enamel, exposing the inner dentine. This stage of caries typically leads to a restoration or filling.

CARIES PREVALENCE

A population measure of the disease experience. Traditionally, survey methods have only recorded some later stages of caries (using the dmft index) at the cavity threshold ($d_3$mft). More recently, comprehensive assessments of both early– and late–stage disease provide an estimate of the total caries present.

CARIES PREVENTION AND CONTROL

The continuing assessment and management of early-stage dental caries to prevent the development of cavities and limit the need for restorative treatment.

DENTAL CARIES

Dental caries is a biofilm-mediated, diet modulated, multifactorial, non-communicable, dynamic disease resulting in a net mineral loss of dental hard tissues. It is determined by biological, behavioural, psychosocial, and environmental factors. As a consequence of this process, a caries lesion develops.

DMFT/DMFT

An index for measuring Decayed, Missing and Filled Teeth (upper case for permanent dentition, lower case decayed, missing and filled teeth for the primary dentition).

GLOCAL

Glocal – a concept promoted by the ACFF in which global evidence is applied locally.

HEALTH OUTCOMES

Benefits to a patient (or group of patients) as the result of a series of interventions.

NON-COMMUNICABLE DISEASES (NCDs)

Medical conditions or diseases that are not caused by classical infectious agents. NCDs can refer to chronic diseases which last for long periods of time and progress slowly.

PAYMENT SYSTEM

The system that generates payments which directly determine or influence the personal income of the primary care dentist.

PREVENTION – PRIMORDIAL

Prevention of the risk factors of the disease.

PREVENTION – PRIMARY

Prevention of the disease (in the absence of the disease).

PREVENTION – SECONDARY

Prompt detection of early-stage disease to provide effective arrest and/or regression of caries prior to the cavity stage.

PREVENTION – TERTIARY

Prevention applied to later stages of caries (cavity stage). It aims to prevent further hard tissue destruction, pulpal involvement, and tooth loss, and restore function and aesthetics while preventing the initiation of new disease.

PREVENTION – QUARTERNARY

Prevention of medical harm from over-medicalization or overtreatment.

PREVENTIVELY ORIENTED PATHWAY

A clinical pathway which includes determining caries risk, detecting and assessing caries lesions, deciding on appropriate care from a menu of preventive and operative choices, and doing patient centred, tooth preserving care. [ICCMS™ / CariesCare International 4D is an example of such a preventively oriented pathway.]

RESTORATIVE – ONLY PATHWAY

A clinical pathway from diagnosis to treatment planning which relies solely on surgical intervention as the treatment.

SDF

Silver Diamine Fluoride – a therapeutic intervention involving painting SDF fluid on open, unrestored caries lesions to promote their arrest.

WHO

The World Health Organisation.

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Executive Summary

Towards a Cavity-Free Future for Infants and Children in South Africa – Outcomes from a Policy Lab in Cape Town, January 2025

1. The challenge: for 20+ years, significant Early Childhood Caries (ECC) affects 60% of 6-year-old children in South Africa

- Tooth decay amongst young children in South Africa is unacceptably high, causing pain, tooth loss and significant harms to wellbeing.
- Social, cultural and behavioural factors in South Africa lead to extractions for ECC rather than prevention or restoration.
- Structural 'system-level' factors also constrain efforts to reduce ECC.

2. The opportunity:

- **Global Developments:** These include the WHO Global Oral Health Action Plan (2023-2030) which makes clear that we have the opportunity to prevent caries, and how succeeding in this would also result in wider benefits to overall health. This commitment has been re-emphasized at the recent WHO Global Oral Health Meeting in Bangkok, Thailand and is supported by: the FDI World Dental Federation and its Vision 2030, the Alliance for a Cavity Free Future (ACFF) activities and documents, the work of the ICDAS Foundation and use of its related tools, as well as the work of the International Association for Paediatric Dentistry (IAPD) and its 2019 Declaration on ECC.
- **Developments in South Africa:** South Africa benefits from the recent launch of a National oral health policy and strategy which, among other important elements, seeks to integrate oral health into general health and NCD Strategies. Examples of provincial-level initiatives include ECC preventive initiatives in Western Cape (as part of a 5-year Oral Health Disease Prevention Strategy) and Gauteng (including the Integrated School Health and Mother to Child programs).

3. The Policy Lab: designing innovative pilots to make a measurable impact on caries prevention and care for children aged 0-6

- A Policy Lab is a collaborative workshop that brings together diverse stakeholders to discuss and make a breakthrough on a particular problem.
- Run by ACFF with the support and input of a local planning group of South Africa experts, the South Africa Oral Health Policy Lab in Cape Town focused on the specific question: 'Building on on the best available evidence and practice, how can a small number of innovative pilots, focused on measurable impact in caries prevention and care for those aged 0-6, be designed and implemented with a view to sustainable national rollout?
- The diverse group of participants considered a range of innovative interventions that might realistically be piloted.

4. The ingredients for long-term sustainable reductions in ECC

- Begin by recognising that ECC prevalence in South Africa is being undermeasured.
- The high ECC prevalence rates amongst children aged 0-6 in South Africa points to the need for earlier intervention with follow-up.
- Ingredients for pilots that could lead to sustainable reductions in ECC were identified.

5. The proposed pilots for immediate progress

- **Pilot 1** focused on registered crèches with a package of interventions, including regular tooth brushing and the application of Silver Diamine Fluoride (SDF), which are integrated with hygiene and nutrition programs.
- **Pilot 2** focused on mother and child clinics with a package of interventions including information, direct support and referrals
- **Pilot 3** focused on expanding the size and capabilities of a broader 'oral health workforce' through task-shifting and developing the skills of non-oral health professionals,particularly amongst community health worker (CHW) teams.

A number of cross-cutting enabling actions were also identified:

- Developing a **national oral health vision and strategy document for children aged 0-6** that can be cascaded through provinces and districts to facilitate local planning and support implementation of the pilots.
- **Commissioning research and analysis** to inform the design of the pilots, monitor progress and assess impact (including baseline data gathering, regular monitoring and periodic evaluation).
- **Using the appropriate formats of the ICDAS system for this age-group** to more comprehensively assess caries prevalence in younger children and monitor disease progression over time.
- **Investing in communications and campaigning to spread awareness and prompt action** on oral health amongst all stakeholders.

6. Suggestions for supporting policies and other actions

- In addition to the pilot proposals and enabling actions, Policy Lab participants identified other potential changes that should be considered in improving the oral health prevention and care in children aged 0-6.

7. Next steps

- Develop a timeline for advancing the pilots and enabling actions.
- Create a working group to take forward the work, possibly through reforming the South Africa Chapter of ACFF.
- Pursue potential sources of funding.
- Consider showcasing progress at the *International Association for Paediatric Dentistry Congress* in Cape Town October 2025.

Based on the advice and policy recommendations from the South Africa Oral Health Policy Lab in Cape Town, Jan. 30-31st 2025

March 2025

Alliance for a Cavity-Free Future ACFF Stop Caries NOW for a Cavity-Free Future

health Department: Health REPUBLIC OF SOUTH AFRICA

power of numbers

Towards a Cavity-Free Future for Infants and Children in South Africa

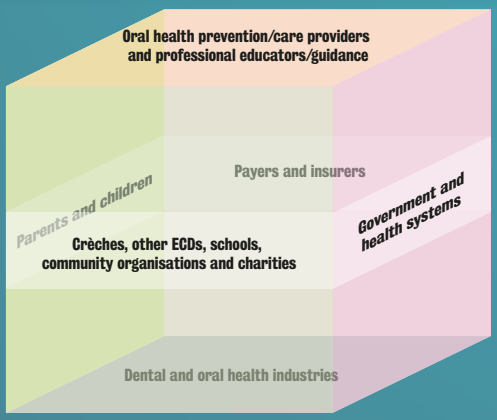
Policy Lab Question: Building on the best available evidence and practice, how can a small number of innovative pilots, focused on measurable impact in caries prevention and care for those aged 0-6, be designed and implemented with a view to sustainable national rollout?

THE CHALLENGE

for 20+ years, significant Early Childhood Caries (ECC) affects 60% of 6-year-old children in South Africa

THE OPPORTUNITY

Evidence and international consensus shows we can now prevent caries earlier and also bring wider benefits to health



The needs & interests of different stakeholders

ACTIONS AND PILOTS

ENABLING ACTION 1

Delivering a **national oral health vision and strategy document for children aged 0-6** that be cascaded through provinces and districts to facilitate local planning and support implementation of the pilots

ENABLING ACTION 2

Commissioning **research and analysis to inform the design of the pilots, monitor progress and evaluate impact**

ENABLING ACTION 3

Using the **ICDAS system to assess caries prevalence**

PILOT 1

Focused on **registered crèches with a package of interventions, including SDF, which are integrated with hygiene and nutrition programs**

PILOT 2

Focused on **mother and child clinics with a packaged of interventions targeted at mothers including information, direct support and referrals**

PILOT 3

Focused on **expanding the size and capabilites of a broader 'oral health workforce' through taskshifting and developing the skills of non-oral health professionals**

ENABLING ACTION 4

Investing in **communications and campaigning to spread awareness and promote action on oral health** amongst all relevant stakeholders

NEXT STEPS

- Develop a timeline for advancing the pilots and enabling actions
- Create a working group to take forward the work
- Pursue potential sources of funding
- Consider showcasing progress at the IAPD Congress in Cape Town October 2025

"putting the mouth back in the body"

"working with existing health & education systems"

"ensuring that no child is left behind"

March 2025

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power of numbers