ORAL HEALTH IN CHILDREN

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BACKGROUND

- Oral health is essential for overall health, especially in children[1]
- Affects nutrition, growth, speech development and impacts quality of life[2]
- Globally, dental caries most common chronic childhood disease[3]
- In 2010, untreated caries in the deciduous dentition 10th most prevalent condition[3]
- Children from low social economic backgrounds more at risk of poor oral health[4]

ORAL HEALTH AMONG CHILDREN IN SOUTH AFRICA

Oral health among children in SA remains a significant public health challenge.

- National Children's Oral Health Survey of 2003 reported high prevalence of dental caries
- About 60% of children less than six years had dental caries[5]
- 80% of caries in children was untreated[5]
- Reasons include low parental awareness, ineffective prevention and inequity in dental care access

Age Group	4-5 years		6 years		12 years		15 years	
	% Decay	% Untreated decay	% Decay	% Untreated decay	% Decay	% Untreated decay		% Untreated decay
Weighted national mean	50.6	46.6	60.3	55.1	36.9	30.3	51.0	42.2
Western Cape	77.1	72	82.3	75.2	61.8	51.6	81.1	70.7
Northern Cape			72.1**	70.9**	47.3	44.2	62.8	55.2
Eastern Cape	58.9	53.7	67.7	63.6	49.0	32.7	63.8	48.4
Free State	60.1	57.8	59.2	56.8	36.8	33.3	54.5	50.6
KwaZulu-Natal	52.4	50.8	64.8	59.9	38.7	34.9	50.9	46.3
Gauteng	49.1	37.6	59.7	50.5	34.3	26.6	49.9	31.1
North West	41.0	39.5	52.3	48.2	27.5	25.0	39.0	35.5
Mpumalanga	40.2	35.1	56.2	48.4	29.7	26.6	41.4	36.8
Limpopo	31.3	30.8	37.2	33.8	15.8	14.1	28.4	24.1

Source: Report: National Children's Oral Health Survey South Africa 1999-2002 (Department of Health – 2003)
*Primary/Milk teeth **Age-adjusted figures

ORAL HEALTH AMONG CHILDREN WITH SPECIAL HEALTHCARE NEEDS (CSHCN)

CSHCN have greater burden of dental caries compared to healthy peers[6]

Few studies conducted in SA indicate CSHCN have high prevalence of dental caries (22.5%-85.2%)[7-11]

Evidence indicates that CSHCN have high unmet treatment needs due to caries,[6] including in SA[12]

CSHCN with severe disabilities may face greater barriers to dental care[13]

OTHER ORAL HEALTH CONDITIONS

Other oral health conditions especially in CSHCN include:

- Disorders of tooth eruption (delayed eruption, over-retained deciduous teeth) common in Down syndrome
- Developmental disorders of enamel and dentine such as amelogenesis imperfecta, dentine dysplasia
- Craniofacial anomalies such as cleft lip and palate
- Oral candidiasis (thrush) is prevalent oral manifestation of HIV in children
- Traumatic dental injuries

Dental caries is multifactorial[14]

Interaction between acid producing bacteria and fermentable carbohydrates over time

Results in demineralize enamel and dentin

Earliest visual sign of dental caries- white spot lesion

EARLY CHILDHOOD CARIES

- Early childhood caries (ECC) refers to dental caries in children 71 months or younger[15]
- Severe ECC indicates smooth surface caries in children below 3 years
- Attributed to presence of bacteria such as *Streptococcus Mutans*[16]
- ECC remains a public health concern in SA, with a national prevalence of 50.6%[5]
- Children from low-income families are more at risk, pointing to the importance of social determinants of ECC

ECC

RISK FACTORS OF ECC

Apart from the microbial aetiology, other risk factors for ECC include:

- Diet high in sugars especially frequent in-between foods and drinks
- Nighttime bottle feeding with sweetened beverage
- Prolonged bottle-feeding with sugary liquids
- Breastfeeding though beneficial is associated with ECC especially at night and beyond 12 months[17]
- Suboptimal oral hygiene

CONSEQUENCES, MITIGATION AND TREATMENT

ECC negatively impacts the child's oral and general health

- Severe dental pain and abscess formation
- Difficulties in eating, leading to poor nutrition and growth delays
- Higher risk of caries in primary and permanent dentition
- School absence
- Reduced oral health –related quality of life

Treatment may involve hospitalisations, general anaesthetic and high treatment costs

MITIGATION STRATEGIES

According to the AAPD Policy on ECC[18]

Home based strategies include:

- Modify diets to avoid frequent consumption of liquids/ foods containing sugar
- Eliminate baby bottle- and breastfeeding beyond 12 months, especially if frequent or nocturnal
- Initiate tooth brushing with fluoride toothpaste as soon as the first tooth erupt

Professional such as:

- Promote early dental visits by 12 months of age for caries risk assessment and parental education
- Provide professionally-applied fluoride varnish treatments for children at risk for ECC
- Raise awareness of ECC with parents and oral health and medical professionals

DENTAL TREATMENT

Majority of children with severe ECC require treatment under general anaesthesia (GA)

Limited evidence in SA indicates that treatment for ECC is primarily under GA and involves dental extractions[19-21]

Cost of GA treatment a burden on the public health system[19]

Long waiting list for dental GA reported at academic dental hospitals[20]

Need for greater preventative efforts with non-dental professionals

HEALTH PROFESSIONALS' ROLE

- Nurses, paediatricians often the first healthcare professionals to see children regularly
- Provides a unique opportunity to promote oral health
- Requires them to have adequate oral health knowledge
- Role includes caries risk assessments and preventive counselling

SCREENING AND EARLY DETECTION

- Paediatricians and nurses should conduct oral health risk assessments during well-child visits
- Starting at six months
- Identify early signs of dental disease such as white spot lesions, visible cavities, inflamed gums, or oral trauma
- Early detection allows for timely referral to dental professionals, preventing disease progression

CARIES-RISK ASSESSMENT IN CHILDREN

Determination of the likelihood of increased incidence of caries

Aid in identification of specific behaviours or risk factors

Allow dentists and other healthcare professionals to identify and refer high-risk children

Caries-risk assessment models currently involve combination of factors

Including diet, fluoride exposure, a susceptible host, and microflora that interplay with social, cultural, and behavioural factors

AAPD Guideline on Caries-risk Assessment and Management for Infants, Children, and Adolescents

CARIES-RISK ASSESSMENT FORM FOR 0-3 YEAR OLDS[22]

Factors	High Risk	Low Risk
Biological		
Mother/primary caregiver has active cavities	Yes	
Parent/caregiver has low socioeconomic status	Yes	
Child has >3 between meal sugar-containing snacks or beverages per day	Yes	
Child is put to bed with a bottle containing natural or added sugar	Yes	
Child has special health care needs	Yes	
Child is a recent immigrant	Yes	
Protective		
Child receives optimally-fluoridated drinking water or fluoride supplements		Yes
Child has teeth brushed daily with fluoridated toothpaste		Yes
Child receives topical fluoride from health professional		Yes
Child has dental home/regular dental care		Yes
Clinical Findings		
Child has white spot lesions or enamel defects	Yes	
Child has visible cavities or fillings	Yes	
Child has plaque on teeth	Yes	

PREVENTIVE COUNSELLING

Paediatricians and nurses can educate parents on:

- The importance of limiting sugary foods and drinks
- Proper oral hygiene practices, including supervised tooth brushing
- The significance of fluoride in caries prevention
- The need for early dental visits by the child's first birthday
- Avoiding prolonged bottle-feeding and nighttime feeding with sugary liquids

COLLABORATION

- Interprofessional education and collaboration key strategy to reduce ECC[18]
- Medical health professionals can ensure children have access to dental screenings and preventive procedures
- Potential benefits of early referral include disease prevention, timely treatment and possibly decreased cost
- Medical-dental collaboration should be enhanced to reduce burden of ECC in SA

INTEGRATION MODELS

- Consists of partnerships between primary care providers and oral health providers
- Allow the opportunity to provide preventative oral care to the most vulnerable populations
- An integrated maternal and child oral health policy has been proposed in SA[23]
- Mothers and children under six regularly utilise services at primary care settings
- Proposed integration could help address the burden of childhood caries and reduce the need for dental GA

SOCIAL DETERMINANTS

- Children's oral health is influenced by multiple factors[24]
- Poverty, education, access to healthy foods, culture influence oral health status and oral health inequities[25]
- Improving children's oral health in SA will also require addressing these social determinants[26]
- Paediatricians can consider and address determinants of oral health
- Advocate for health system and policy changes that promote improvements in children's oral health and oral health equity

RECOMMENDATIONS AND CONCLUSIONS

Paediatricians and nurses could contribute to better oral health for children by:

- Including oral health risk assessment for children in routine visits
- Providing oral health guidance and preventive counselling on diet, oral hygiene, infant feeding practices
- Encourage caregiver to take the child to the dentist by first birthday
- Enhance relationships with other dental providers
- Support health policies which address social determinants of children's oral health

CONCLUSIONS

- Childhood caries still prevalent among preschool children and CSHCN in SA
- Majority of the caries is untreated despite being preventable
- Reducing burden of childhood caries requires collaborative efforts between dentists and primary care providers
- Focus should be on early preventative strategies
- Increased collaboration, integration with primary care and addressing social determinants of childhood caries essential

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