

Problem

Early childhood caries (ECC) is an infectious and transmissible disease influenced by multiple factors and requiring a combination of approaches for improvement.¹ ECC is strongly associated with vulnerable subpopulations (impoverished, minority, immigrant, migrant, homeless) and is highly prevalent in poor and near-poor preschool children in the United States.^{2,3,4} The disease is preventable, yet remains largely untreated in children under age three.⁴

Early childhood caries has been defined as “the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces” in any primary tooth in a child under the age of six.⁵ Severe ECC (S-ECC) involves more tooth surfaces and has a rampant nature.^{4,6,7} Any sign of smooth-surface decay in children younger than three years of age is indicative of S-ECC. ECC typically starts soon after the eruption of the first teeth and progresses rapidly to the cavitation stage in only six to 12 months, highlighting the need for early intervention.^{8,9}

The daily consequences of ECC to families, communities and society often go unnoticed. Morbidity and mortality costs can impact the child as well as the family and community.¹⁰ Children with ECC experience a greater number of school days missed and increased time with restricted activity.^{11,12,13} The associated discomfort and toothaches contribute to eating and sleeping dysfunctions, impaired growth, weight loss and diminished oral health related quality of life.^{10,13,14} This impacts young children’s ability to learn by interfering with concentration, and school participation.^{15,16,17,18} In extreme cases, ECC and its lack of treatment can even lead to serious disability and death. In addition, in trying to find access to care and managing chronic pain and its consequences, families experience stress and diminished quality of life. ECC can lead to inappropriate use of over-the-counter pain medication for the child and misuse of emergency department resources. Parents may experience absences from work and lost income and increased costs for travel and child care. Significant costs can accrue to the family or the community for hospital admissions, analgesics and antibiotics, and emergency room visits.¹⁰

Children with ECC are at increased risk for new decay in both their primary and permanent teeth.¹⁹ Despite aggressive treatment for ECC, recurrence of early childhood caries is common.^{20,21,22} Children with ECC have increased treatment time and costs and often require hospitalization and emergency room visits. Dental treatment under general anesthesia for extensive repair is costly and potentially risky as the pediatric population has the highest risk and lowest tolerance for error for adverse events in sedation and general anesthesia.¹⁰ The impact of ECC on communities and health care systems results from the high

cost of care under general anesthesia and in the operating room.¹⁰ The average cost per visit for the treatment of dental caries and pulpal conditions in emergency departments and ambulatory surgical facilities was \$5,501 in 2008, and emergency department management of ECC infection and pain often does not result in definitive care for the decayed teeth.^{23,10} The consequences, costs and risks of treatment of this disease which is largely preventable are placing a disproportionate burden on children, their families and our society.¹⁰

Common barriers to achieving optimal oral health for young children include: failure to prevent transmission of the bacteria that cause tooth decay from caregivers and siblings to infants and young children, frequent and high intake of sugar, and less than optimal exposure to fluorides.²⁴ Other barriers include failure to detect tooth decay early before the disease process leads to extensive damage; and cultural, social and economic influences on oral health such as dietary practices, home care and beliefs about primary teeth. In addition, young children and their families encounter barriers to accessing and using professional dental care, including the lack of dental insurance; limited safety net services, especially for young children; the lack of financing to support prevention and dental disease management; and the low priority placed on preventive dental care.²⁵

Methods

Strategies to prevent and control ECC should address the dental disease process, promote systems of care that support children during their early developmental years and develop public health practices for prevention. Strategies to prevent and control ECC should stop the onset of tooth decay in primary teeth, identify and recognize early signs of tooth decay, treat tooth decay early, and prevent new and recurrent decay. Prevention efforts should include educating the mother and other primary caregivers about the transmission of bacteria that causes tooth decay and assessing a young child's risk for decay. Health professionals and parents should be taught to identify and recognize white spot lesions to initiate preventive care to arrest decay and minimize subsequent treatment. Professional care is needed to arrest the disease and prevent further damage. Health professionals need to manage the underlying disease process and address the risk factors that cause decay in new and restored areas of the teeth. The first step in this process is the integration of the child into a dental home/health home.²⁵

The American Association of Public Health Dentistry, American Academy of Pediatric Dentistry, American Dental Association, American Academy of Pediatrics, and American Public Health Association recommend that infants receive an oral evaluation within six months of the eruption of the first primary tooth, but no later than 12 months of age.^{26,27,28,29,30} To achieve optimal oral health, children need professional dental care that should start in infancy and continue over the lifespan.^{29,31} Integration into a dental home/health home will foster interaction of the child, parents, non-dental health professionals and dental professionals to deliver oral health care in a comprehensive, accessible, coordinated and family-

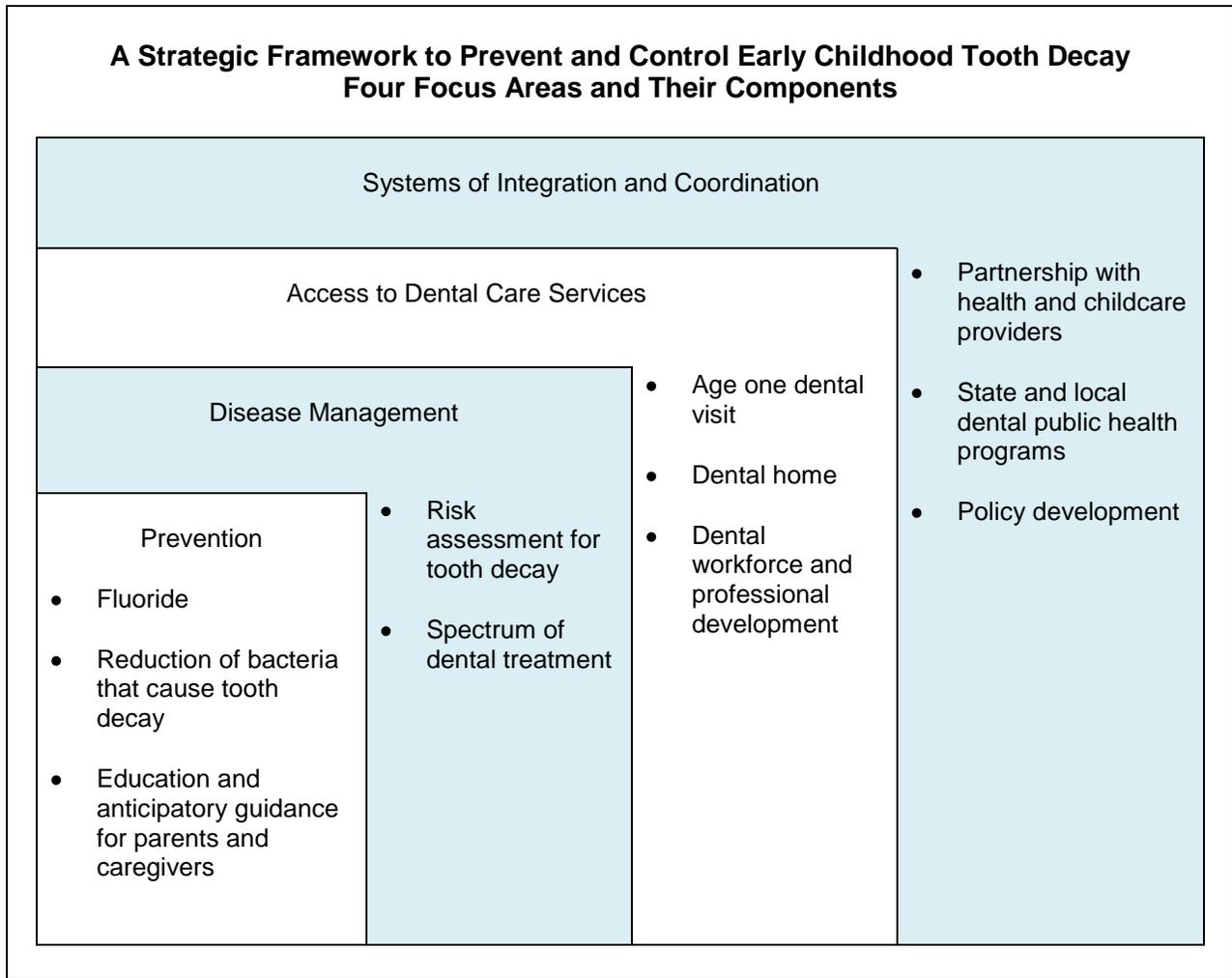
centered way.³¹

Strategies to prevent and control ECC should also promote systems of care that provide an adequate and competent workforce and payment incentives to promote early childhood oral health and manage all stages of tooth decay. Oral health should be integrated and dental care services should be coordinated with care systems supporting young children (e.g., medical, dental and educational systems).²⁵ Creating a health home environment through medical/dental collaboration would enable a greater focus on the association between mother and the child to benefit the oral health of both.^{32,33,34} A health home also enables the involvement and payment of non-dental health care providers who serve pregnant women or mothers with young children and could see them during regularly scheduled well-child visits. With the help of medical providers trained to provide oral health screenings and anticipatory guidance, apply preventive measures, and refer infants and toddlers for dental care, prevention and early intervention can be accomplished. An integrated oral health system would establish cooperation between medical and dental care providers and the families and children they serve. The support of the healthcare structure will enable this collaboration to function and thrive to effectively address children's oral health.

Public health practices should include population-based approaches that complement individual approaches. Implementation of community water fluoridation and use of topical fluorides to prevent tooth decay are evidence-based practices with an emphasis on prevention and effective outcomes. Public and private partnerships are needed to raise the profile of the epidemic of tooth decay and its consequences in young children and to leverage community resources to address the problem.²⁵

Fisher-Owens and colleagues proposed a model that recognizes the levels of influence on children's oral health and shows that child, family and community interact with the biological factors impacting oral health.³⁵ Drawing on this model, a strategic framework to prevent and control ECC has been developed by Tang for ASTDD. The framework (Figure A) includes four focus areas: Prevention, Disease Management, Access to Dental Services and Systems of Integration and Coordination that are tied to the child, family and community levels of influence on children's oral health.³⁶

Figure A.



Source: Association of State and Territorial Dental Directors. *Best Practice Approach Report: Prevention and Control of Early Childhood Tooth Decay*. 2011.

This framework can assist in planning and implementing strategies, developing policies, conducting research and allocating resources to improve early childhood oral health and prevent ECC. Local, state and national efforts should focus on these four areas to improve early childhood oral health.

Policy Statement

Early Childhood Caries (ECC) is a significant public health problem in specific populations. The Association of State and Territorial Dental Directors (ASTDD) supports and strongly recommends that state and local health departments and other community programs implement programs and policies to address early prevention, oral disease risk management, access to dental care services and systems of integration and coordination to prevent and control ECC. ASTDD recognizes the importance of evidence-based prevention such as community water fluoridation, the emerging evidence regarding fluoride varnish, the efficacy of fluoride toothpaste, and early intervention through the establishment of a coordinated medical and dental home, which adheres to the recommendations of a first dental visit by age one to reduce ECC.

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