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By Word of Mouth: A Qualitative Approach to Understanding the Integration of Preventive Dental Health in Primary Care Settings

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BY WORD OF MOUTH: A QUALITATIVE APPROACH TO UNDERSTANDING THE INTEGRATION OF PREVENTIVE DENTAL HEALTH IN PRIMARY CARE SETTINGS

by

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ABSTRACT

Childhood and adolescence are sensitive periods in the lifespan when oral and craniofacial appearances can help determine social interactions and lifetime outcomes. In this respect, oral health can be viewed as more than just brushing or flossing for healthy teeth; children's oral health can influence their social development and behaviors, impact their academic growth, affect their guardian's responsibility for healthcare cost and create a potential pathway for negative impacts on quality of life. Access to quality oral healthcare is vital for the prevention of unwanted diseases and to avoid the burden of oral health complications. Oral health disparities may not be the consequence of negligence, but rather, the result of unmet needs and limited access to quality oral health care. Collaborations within systems of care that include medical and dental health professionals may lead to opportunities for improvements in oral health and overall health among children and adolescents. This research study was focused on medical-dental collaboration model and its potential to provide an opportunity to meet the oral health needs of children and adolescents. Therefore, the overall goal of this study was to understand how preventive dental health was integrated in the pediatric primary care settings that participated in the Quality through Technology & Innovation in Pediatrics (QTIP) demonstration project.

Data were collected from August 2014 – January 2015 and analyzed in two stages. First, we conducted a directed content analysis using data provided by the QTIP project director. Second, twenty-two QTIP participants were interviewed using qualitative methods. Overall, the process evaluation data suggested that the principles of preventive dental health integration were successfully implemented as result of the QTIP demonstration project. Through examination of the process evaluation domains of fidelity, dose delivered, reach and dose received, we were able to determine to what extent primary care pediatric practices engaged with materials and trainings of the QTIP demonstration project and how primary care pediatric practices integrated preventive dental health in their medical settings. Through the qualitative interviews we identified seven key themes related to the feasibility of integrating preventive dental health: 1) communication between staff members; 2) role delineation; 3) preventive dental health education and training; 4) sustaining improvement; 5) willingness to engage in QTIP recommendations for preventive dental health; 6) parent behaviors and 7) practice-based recommendations for preventive dental health integration. We also categorized each practice as having a strong, moderate, or weak preventive dental health implementation based on their perceived achievement of preventive dental health integration in their medical setting. Overall, the findings of this dissertation revealed that preventive dental health integration has the potential to be a feasible and effective strategy to improving the oral health outcomes for children and adolescents in South Carolina (SC).

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CHAPTER 1

INTRODUCTION

1.1 PROBLEM STATEMENT

National calls from the Office of the Surgeon General for improving oral health behaviors, increasing access to care, and enhancing policy changes to improve oral health have led to strategic efforts to eliminate dental health disparities (Bell, Huebner, & Reed, 2012). Although strides have been made in advancing the public's knowledge and promotion of oral health, substantial disparities remain in children and adolescents of the United States (U.S.) Tooth decay – or the destruction of the hard, outer layer of teeth (tooth enamel) – is often caused by the oral intake of acidic foods or drinks that attack the tooth enamel, which then causes the tooth to lose minerals and degrade (Carlson and Veschucio, 2006; Gussy, Waters, Walsh, & Kilpatrick, 2006). Tooth decay affects more than one-fourth of U.S. children aged 2–5 years and half of those aged 12–15 years(SC Department of Health and Environmental Control, 2011). Additionally, nearly half of all children and two-thirds of adolescents aged 12–19 years from lower-income families have experienced tooth decay (Center for Chronic Disease Prevention and Health Promotion., 2010). Children and adolescents living in states within the southeastern region of the U.S. (i.e. South Carolina, Florida, Mississippi, Georgia, Louisiana, Arkansas, Tennessee, and North Carolina) are at higher risk for poor health outcomes (Goldhagen et al., 2005; Liu, Probst, Martin, Wang, & Salinas, 2007; Scott, Wilson,

& Scott, 2011), a disparity which may extend into adulthood.

The oral cavity or mouth is our primary mechanism for eating, communicating with others, and directly influences our ability to be susceptible to other diseases. In recent years, research has revealed causal linkages between oral and systemic diseases (Azarpazhooh & Leake, 2006; Bandyopadhyay, Marlow, Fernandes, & Leite, 2010; Offenbacher et al., 2006; Paula et al., 2012). Oral health is associated with higher risk for cardiovascular disease, as well as increased risks for people living with diabetes and/or respiratory disease, adverse pregnancy outcomes, and oral cancer (Azarpazhooh & Leake, 2006; Genco, Glurich, Haraszthy, Zambon, & DeNardin, 2000; Guha et al., 2007; Offenbacher et al., 1996, 2006). Oral health is important because it's both a foundation and indicator of systemic health and knowing this will help understand the value of prevention opportunities to reduce oral health disparities.

A comprehensive oral health approach is multifaceted and based on many factors, including: oral health literacy, low income, dental insurance, transportation, parental socioeconomic status, and (most importantly) access to preventive and professional dental care services (Carlson and Veschucio, 2006; Gussy et al., 2006; Liu et al., 2007; Mouradian, Huebner, Ramos-Gomez, & Slavkin, 2007). Promoting preventive dental health through other actors in the healthcare system, such as through medical provider settings, will benefit both the patient and provider by increasing the adolescents' overall health and well-being (Paula et al., 2012; Slavkin, 2001).

1.2 STUDY FOCI

This study focused on medical-dental collaboration, a relatively recent framework that supports the interprofessional collaboration between dental and medical providers

who are working together to serve their patients for better oral health outcomes. (U.S. Department of Health and Human Services & Administration, 2014). The inclusion of oral health messages during primary care visits provides clinicians with an opportunity to promote positive oral health behaviors for adolescent patients. In order to understand the potential of the medical-dental integration model for reducing oral health disparities, it was necessary to examine current efforts to integrate preventive dental health in primary care settings, as well as understand pediatric physician and pediatric health care professionals' perceptions about their role in this process. Such an evaluation would provide deeper insight into the context and processes involved in medical-dental collaboration initiatives.

This research was nested within a five-year, federal quality demonstration grant in South Carolina (SC). The objective of the larger study – the Children's Health Insurance Program Reauthorization Act, Quality Improvement (CHIPRA QI) – QTIP demonstration project was to establish and improve the quality of children's healthcare through measures of quality, promotion of health information technology, and evaluation of provider-based models. SC was one of 10 grantees selected to participate in this federal quality demonstration grant. SC Department of Health and Human Services (SCDHHS) was awarded $9.2 million for this demonstration project. SC's grant included 4 key goals including:

Quality: *demonstrate that newly developed quality indicators can be successfully utilized in pediatric practices;*

Technology: *share key clinical data through a statewide electronic quality improvement network;*

Innovation: *develop a physician-led, peer-to-peer quality improvement network; and*

Pediatrics: *expand the use of pediatric medical homes to address mental health challenges of children in our state.* (SCDHHS, 2014)

The strategy that was developed to meet the aforementioned key goals involved the establishment of the QTIP demonstration project, which included the following components: a lead practitioner to implement the quality improvement efforts across 18 primary care pediatric practices across the state, an internal QI team, stipends and assistance for each of the 18 QTIP practices, Learning collaborative meetings, and technical assistance site visits (SCDHHS, 2014). Given that preventive dental health was part of the required training for the primary care pediatric practices, QTIP provided a unique opportunity to evaluate the medical-dental collaboration efforts that were part of the larger QTIP demonstration project.

The overall goal of the current study was to understand how preventive dental health was integrated within the pediatric primary care practices involved in the SC QTIP demonstration project. The study was guided by the Ecological Perspective (Bronfenbrenner, 1997; Fisher-Owens et al., 2007; McLeroy, Bibeau, Steckler, & Glanz, 1988) and used a constructionist qualitative approach to explore the feasibility of preventive dental health integration within specific social and environmental systems (Greene, 1994; Patton, 2002). The constructionist qualitative approach was used in order to reveal the ways in which participants construct, interpret, and experience interactions with each other and wider social systems in the context of the public health phenomenon being studied (Ulin, Robinson, & Tolley, 2004). Principles of process evaluation were

used to identify aspects of fidelity, dose delivered, reach, and how the integration of oral health was received by the QTIP pediatric primary care practices (Bradley et al., 2009; Linnan & Steckler, 2002; Saunders, Evans, & Joshi, 2005).

1.3 PRELIMINARY STUDIES

The overarching premise of my public health research agenda is to improve oral health among children and adolescents in SC through medical-dental collaboration. I have structured my research agenda around exploring the current state of knowledge regarding dental health within this population, as well as understanding structures within the environment that limit or fail to support dental health in this population. My goal is to contribute to the body of literature on this issue by utilizing qualitative methods as my primary tool for uncovering new information about preventive dental health integration within primary care settings in SC. The development of my research agenda reflects my academic and professional training, coupled with research experiences that have shaped and refine my overall approach to public health research and practice.

Academic and Professional Training

I earned a Masters of Science degree from the Medical University of South Carolina in the College of Graduate Studies, Department of Microbiology and Immunology in 2011. During this program, I observed a desperate need for expanded scientific research and public health education for the prevention of oral health diseases for children and adolescents in South Carolina. The training I received was in experimental, translational research science, but allowed me to expand my scope of scientific investigation by serving as a student researcher on a community-based participatory research focused project, *Hollywood Smiles*. In this role, I developed a

strong desire for the use of qualitative research skills through mentorship and began to identify additional opportunities to contribute to social science research projects.

I am in the fourth year of my doctorate of philosophy (PhD) program in the Arnold School of Public Health. The training that I received throughout the duration of my Doctoral training expanded my knowledge in critical thinking, exploration of intervention and theory, and provided an opportunity for educational growth in qualitative research development. Foundational courses such as Applied Measurement, Advanced Qualitative Strategies and Design, Critical Race Theory, Perspectives in Rural Health Disparities, Advanced Evaluation, and Implementation and Monitoring of Health Promotion Programs have enhanced my skill sets in qualitative design, outcome and process evaluation, and improved my understanding of complex public health frameworks. I have also excelled as a Teaching Assistant and completed the Preparing Future Faculty training program organized through the Center for Teaching Excellence; I have aligned these on-campus training experiences as exposures to skillsets often required for professors teaching in an academic and research learning institution. This training program provided me with a hands-on experience to develop graduate level teaching techniques, junior faculty development, lecturing values, interactive tools for research in the classroom, and additional methods for practical, but innovative teaching styles.

Research Experience

I am currently a Research Associate at the Rural Health Research Center, and part of the oral health division and evaluation team. I have been involved with multiple networks that support the reduction of oral health disparities, including the following:

DentaQuest Foundation, SafetyNet Solutions, SC Primary Care Association, USC - Cocky's Reading Express, Carolina Health Centers, SC DHEC Division of Oral Health, Medical University of South Carolina. My continued involvement in these networks has enabled me to engage with multiple stakeholders who provided me with the resources needed to successfully develop and complete my dissertation. I contributed to the development and publication of the 2012-2013 SC Oral Health Needs Assessment and the continued research efforts supported by the DentaQuest Foundation. In conjunction with the Deputy Director at the Rural Health Research Center, I conducted a Photovoice evaluation of a study that focuses on helping home visitors include oral health within their services. This study will explore if including oral health has been helpful to home visitors and the parents with whom they work. Photovoice is a qualitative technique that is commonly used in community participatory evaluation approaches (Kramer, Schwartz, Cheadle, & Rauzon, 2012). The study will explore if including oral health has been helpful to home visitors and the parents with whom they work. In this evaluation parents and home visitors will use photography to document their perspectives on the proposed evaluation questions, to better tell their stories about oral health. Focus groups will be conducted and the parents and home visitors interpret the photos in light of the evaluation questions. The study represents the acceptability of oral health messaging integration into existing Maternal, Infant, and Early Childhood Home Visiting curriculum.

In 2012-2013, I worked with two faculty members within the Health Promotion, Education and Behavior to examine how the characteristics of successful partnerships have not been fully – described, particularly in the context of community-based physical activity promotion. We sought to identify characteristics of successful partnerships from

the perspective of project coordinators involved in a mini-grant program to promote physical activity among young people. This experience allowed me to conduct qualitative analytic procedures using a grounded theoretical framework. I presented study results at the 2013 Meeting of the American Public Health Association, as well as developed and published a peer-reviewed manuscript (Nelson, Moore, Blake, Morris, Kolbe, 2013).

1.4 OVERVIEW OF THE STUDY

This study used a qualitative approach to understand the acceptability and feasibility of preventive dental health integration in pediatric primary care settings. The study addressed the following specific aims:

SA1: To examine the process by which primary care pediatric practices integrated preventive dental health based on QTIP quality health improvement recommendations

RQ1. To what extent did primary care pediatric practices receive materials and trainings designed to provide QTIP quality health improvement recommendations for preventive dental health?

RQ2. How did primary care pediatric practices integrate preventive dental health as a result of receiving QTIP quality health improvement recommendations?

SA2: To explore primary care pediatric provider perspectives on preventive dental health integration

RQ3. What are the primary care pediatric provider perspectives on oral health?

RQ4. What are the perceived roles of primary care pediatric providers in preventive dental health?

RQ5. How do the pediatric providers describe their experiences with preventive dental health integration as a QTIP participant?

RQ5a. What are the challenges to preventive dental health integration in their practice?

RQ5b. What are the recommendations that pediatric providers provide for preventive dental health integration?

The format of this dissertation includes a review of the literature (Chapter 2), a discussion of the research methodology and theoretical framework (Chapter 3), research study results in the form of two manuscripts (Chapter 4), and discussion and recommendations for future research (Chapter 5). Manuscripts are formatted in accordance with the target journal specifications.

CHAPTER 2

BACKGROUND AND SIGNIFICANCE

2.1 A SILENT EPIDEMIC

Tooth decay or cavities are a common, preventable problem for many children and adults living in the U.S. Tooth decay occurs when there is a destruction of the hard, outer layer of teeth (tooth enamel), which causes the tooth to lose minerals and degrade. Oral diseases, such as tooth decay and periodontal disease are highly irreversible once they occur and have complex etiologies (Carlson and Veschucio, 2006; Gussy et al., 2006) . Untreated cavities often cause tooth pain, lead to academic school absences, speech and masticatory complications, and lower self-esteem due to poor oral cavity appearance. Deterioration of oral health can impede social development, encourage various levels of discomfort, and create a pathway for negative impacts on quality of life (Paula et al., 2012). Oral healthcare is vital for prevention of unwanted diseases and complications (Guarnizo-Herreno and Wehby, 2012). Oftentimes, oral health is overlooked as an integral component of general health, which perpetuates the devastating effects of the silent epidemic of oral disease.

According to the Surgeon General's Report (2000), poor children are more likely to experience the consequences of oral health complications, most commonly dental cavities. Cavities has also been characterized as one of the single most important chronic diseases that continues to disproportionally burden our more vulnerable populations, such as older adults, low-income and underinsured populations, and children with special

needs (Satcher, 2000). Addressing dental health is an important step in closing the gap in oral health disparities and aligns with major initiatives of Healthy People 2020, "to increase public awareness and understanding of the determinants of health and empower individuals to make informed health decisions" ("Healthy People 2020: An Opportunity to Address the Societal Determinants of Health in the United States.," 2010).

2.2 ORAL HEALTH DISPARITIES IN SOUTH CAROLINA

Oral health disparities continue to be a major public health problem in SC. Nearly 23% of SC's population is living in poverty (The Kaiser Family Foundation's State Health Facts: "Poverty Rate by Race in South Carolina," 2011-2012), which likely reduces the opportunity for residents to receive preventive and dental treatment for oral care (Liu et al., 2007; Manski and Brown, 2008). Furthermore, children and adolescents under the age of 18 living in low-income families are disproportionately living at a higher risk for oral disease and untreated tooth decay compared to children who are not living in poverty (South Carolina Department of Health and Environmental Control, 2013).

The need for access to oral health care in the Southeastern region of the U.S. has been well-documented. Compared to children living in other states of the U.S., children living in the Southeastern region of the U.S. are consistently placed at higher risk for poor child health outcomes (Cutter, Mitchell, & Scott, 2000; Liu et al., 2007; Scott et al., 2011), which likely extends into adolescence. One reason for the unmet need of oral health among adolescents in SC is limited access to professional dental care services and sustainability of health care providers. Although there is no standard definition of how many dentists constitute an "adequate supply" of providing dental care, the South Carolina Dental Association (SCDA) stated in a position paper on Oral Health (2011),

that a ratio of one dentist to every 5,000 persons may be adequate. In 2011, 18 counties in SC had fewer than two full-time employed dentists, and 20 counties in the state had a ratio of fewer than two dentists for every 10,000 county residents. Statistics from 2011 also revealed a disparity by residence, with one pediatric dentist for 13,000 urban children compared with one pediatric dentist for 53,000 rural children. Additionally, key findings from *The Dentist Workforce in South Carolina Report* confirmed a lack of racial and gender diversity in the SC dental workforce, the potential for significant workforce attrition due to retirement of dental health professionals in the next decade, and confirmed debilitating dental professional shortages in rural communities (SC AHEC Consortium, 2012).

Limited data in SC that focus on primary care practices integrating preventive dental health for children and adolescents. Reports have defined a critical area of interest and surveillance in children populations 0-3 years of age, as well as school-aged (i.e., third grade) children (Carlson and Veschucio, 2006; South Carolina Department of Health and Environmental Control, 2013). Uptake for fluoride varnish (FV) has been recently linked to the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) visits and children were able to receive FV as a form of preventive dental care. In one study, the prerequisite for preventive dental health integration was dependent on the EPSDT visit (Martin, Vyavaharkar, Veschusio, & Kirby, 2012). Research has also revealed that children in SC with a personal healthcare provider were more likely to receive preventive dental care and less likely to receive any dental care; that is, having a personal healthcare provider will increase the chances of the child receiving preventive dental care (Martin, Probst, Wang, & Hale, 2009). In addition, school nurses and other

primary care health providers (i.e., general doctors, specialist doctors, nurse practitioners, or physician assistants) serve as critical actors in the oral health system who can both increase awareness and improve the likelihood of young children visiting the dentist through recommendations or in the case of school nurses, the development of a system of referring school-aged kids to local dentists when needed (Beil and Rozier, 2010; Braun, 2013). Because primary care providers are one of the first and most common health professionals that serve this sub-population, (Irwin, Adams, Park, & Newacheck, 2009; Oppong-Odiseng & Heycock, 1997; Starfield et al., 1984; Stella et al., 2002) understanding the ways in which oral health is integrated within their practices will provide an opportunity to address oral health disparities in child and adolescent populations of SC.

2.3 CHILDHOOD AND ADOLESCENCE: CRITICAL STAGES IN LIFE

Although dental disease is a silent epidemic across the age spectrum, childhood and adolescence are critical times for the promotion of oral health. These years are the time to form positive habits that will promote long-term health and wellbeing (Spear, 2002). During early and middle childhood, it is advantageous for parents and caregivers to build in healthy practices and behaviors to shape children's view of their daily actions with regard to their health (Gussy et al., 2006; Hagan, Shaw, & Duncan, 2008; Mouradian et al., 2007). Promoting oral health during early childhood (ages 1-4) focuses on healthcare professionals educating parents on bacteria transmission, ensuring the cleanliness of the mouth, and introducing foods and liquids of nutritional value and low in sugar content (Hagan et al., 2008). During middle childhood (ages 5-10), the most important goal of dental health is to prevent cavities and gum irritation/disease and

encourage proper development of the jaw and mouth (Hagan et al., 2008). A child with unhealthy teeth can be at serious risk is at risk for future oral health problems as an adolescent and as they mature into adulthood. As mentioned within Association of American Pediatric's *State of Little Teeth: An Examination of the Epidemic of Tooth Decay Among our Youngest Children* (2014), if tissues in the central portion of the tooth are infected, the infection can cause irreversible damage to the tooth. Children are also more susceptible to cavities and gum disease if they lose their baby teeth too early, causing the child's permanent teeth to grow improperly, resulting twisted teeth or orthodontia (Hagan et al., 2008). As children begin to mature, it is important that the oral hygiene, optimal fluoride exposure, and positive dietary habits that were introduced during early childhood are reinforced (Fisher-Owens et al., 2007; Hagan et al., 2008).

An adolescent (aged 11-21 years) will go through many developmental changes (Crone & Dahl, 2012; Hagan et al., 2008; Lawrence, Gootman, & Sim, 2009). This sensitive period during the life course is the time where the individual begins to have a role in his or her decision-making process and becomes more independent. Among these decisions are the active choices made about health (Crone and Dahl, 2012; Sawyer et al., 2012). Adolescents are often shaped by their social and physical environment, which influences the actions that can prevent or encourage a healthy lifestyle. The contextual or physical surroundings of an adolescent such as his or her neighborhood, school, and local grocery store can weigh heavily on decisions made about health. Additionally, social factors such as social norms, peer-to-peer relationships, family, and policies can likewise influence judgments made about health (Crone and Dahl, 2012; McNeely and Blanchard, 2009; Mulye et al., 2009). During this developmental transition, it is important that we as

public health professionals aim to cultivate a discourse that encourages the benefits of healthy behavior adoption (McNeely and Blanchard, 2009; Sawyer et al., 2012).

The focus on children and adolescents extends the reach of prevention past the stage of treatment that often occurs during adulthood. In this way, child and adolescent interventions have been effective and in most cases, create changes that alter future adult behavior choices. Many youth interventions are targeted towards the improvement of healthy eating habits, physical activity, academic improvements, self-esteem, and risky sexual behaviors (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Stockwell et al., 2012; Stormshak et al., 2011; Waters et al., 2011). These targeted interventions are vital to prevention of diseases that may arise in adulthood, such as diabetes, high blood pressure, stroke, and cancerous diseases. However, many of these interventions neglect the important role played by oral health as a gateway to improving overall health outcomes. Based on the current literature, oral health is a missing component in many adolescent interventions and there is little urgency for its inclusion in light of the many other health concerns experiences by this population. There is a continued disconnect between oral health and interventions for children and adolescents, which continues to widen the gap in preventive oral health disparities for adolescent-aged populations.

Similar to adults, children and adolescents are mostly at risk for tooth decay, but their risks for oral complications are intensified as they mature due to other behaviors such as alcohol and drug consumption, eating disorders, sexually transmitted infections caused by oral sex, inconsistent use of seat belts and helmets, and playing sports without mouth guard protection (Lawrence et al., 2009; Satcher, 2000). Child and adolescent oral diseases are also associated with the permanence of caries in teeth, which can cause

dental pain, eating difficulties, disrupted sleep and affected play activity (Organization, 2003). The burden of oral disease exists even in the midst of preventable dental health mechanisms and federal agency actions of support. At three years-of-age, 5-10% of children have oral health issues (Dye & Thornton-Evans, 2010; Lu, Wong, Lo, & McGrath, 2011). By age five, nearly 60% of U.S. children will have had tooth decay and almost 40% of children have tooth decay when they enter kindergarten (Pierce, Rozier, & Vann, 2002; Satcher, 2000). According to the Center for Disease Prevention and Health Promotion, Division of Oral Health (2011), 20% of all adolescents aged 12–19 years currently have untreated decay. An indicator on the National Survey of Children's Health that seeks to identify the number of oral health problems in the past 12 months shows that nearly 21% of adolescents' ages 12-17 in South Carolina also reported having one or more oral health problems (National Survey of Children's Health, 2011). In addition, the burden of oral health disparities for children and adolescents has also been linked to their geographical placement, racial ethnicity, and limitations related to lower-income levels (Bell et al., 2012; Eberhardt and Pamuk, 2004; Polk, Weyant, & Manz, 2010).

Poor oral health can have an economic impact on both families and society. The average treatment cost per child for severe early childhood tooth decay or caries can be up to $10,000 per child, especially for hospitalized treatments (Grossman, Uridell, Allen, & Keller, 2006). Emergency visits cost more and do not result in sustainable treatment for decaying teeth, which leads to continued effects of oral diseases (Casamassimo, Thikkurissy, Edelstein, & Maiorini, 2009; Nagarkar, Kumar, & Moss, 2012). These economic deterrents have also affected the costs for Medicaid programs. The Health

Care Financing Administration states that the Medicaid program alone pays between $100-400 million each year for treatment of early childhood caries (Casamassimo et al., 2009; Edelstein & Chinn, 2009; Edelstein, 1998).

2.4 WELL-CHILD VISITS

The most at-risk children and adolescents for poor oral health outcomes are those who receive Medicaid benefits. In the late 1960's, the Medicaid benefit for children and adolescents was established – the Early and Periodic Screening, Diagnostic and Treatment (EPSDT). According to the – *Partnerships with State Medicaid and Children's Health Insurance Program (CHIP)*,

> *Title V of the Social Security Act: requires the State Title V and Medicaid programs to coordinate and ensure Early Periodic Screening and Treatment (EPSDT) activities to ensure that such programs are carried out without duplication of effort* (Accessed online June 13, 2014.).

The goal of this benefit is to ensure that children and adolescents under the age of 21 are provided with adolescent well-child visits to receive preventive health screenings, treatments, and medically – relevant services from their medical and dental providers to address their conditions.

EPSDT screening guidelines are taken from recommendations of the U.S. Preventive Services Task Force, the American Academy of Family Practice, the American Academy Pediatrics, and the U. S. Department of Health and Human Services Centers for Disease Control and Prevention. The components of an EPSDT includes the following: Comprehensive health and developmental history; assessment of physical and mental development; comprehensive unclothed physical examination; appropriate

immunizations; vision, hearing, lead and dental screenings; and health education, including anticipatory guidance. The health education component of EPSDT allows for medical providers to guide adolescents to adopt healthier patterns and lifestyle choices (Center for Medicaid and Medicare Services (CMS), 2014). The CMS encourages states to include "health education (e.g., physical and behavioral development, healthy lifestyles, and accident and disease prevention)" within their screening portion of the adolescent well-child visit for Medicaid-enrolled children and adolescents.

Medicaid children and adolescents are likely to receive these services annually, as recommended by the EPSDT periodicity schedule. But, because it is common for many eligible recipients of Medicaid to receive benefits due to their low-income status, other factors can also be a hindrance to their access to affordable dental services for treatment, including current residential location, dental health professional shortage areas, parental income, and transportation (CMS, 2014; Kaiser Family Foundation, 2011-2012). It is therefore important that Medicaid recipients receive oral health education and dental preventive services through other sources, likely their primary care provider or medical provider of whom they may have better access. Medical providers who conduct well-child visits can contribute to the opportunities to deliver preventive oral health messages, allowing for a chance to change adolescent oral health behaviors.

2.5 CHILD AND ADOLESCENT ORAL HEALTH – SLIPPING THROUGH THE CRACKS

According to the American Academy of Pediatric Dentistry (2014), there is currently no affirmed dental periodicity schedule for the state of SC. However, medical providers or physicians must adhere to the recommendations of the American Academy

of Pediatrics (2013 SC Medicaid Provider Manual, 2014). These recommendations create critical barriers to promoting the importance of oral health from middle childhood to adolescent ages. Specifically, recommendations for preventive pediatric care exclude oral health as a defined topic of interest for those from middle- to late-adolescence (Appendix A). The adoption of policies to improve oral health will be an important predictor for oral health change. This policy oversight is an important issue that must be addressed in order to better emphasize the benefit of preventive oral health messaging within medical settings, particularly as it relates to oral health behavior change in children and adolescents.

Currently, the state of SC permits medical providers to be reimbursed to apply FV for Medicaid children ≤ age 3 at a rate of $17 per year, providing the opportunity for reduced rates of tooth decay in younger populations (The South Carolina Department of Health and Environmental Control, Division of Oral Health, 2013). Children who receive Medicaid benefits or CHIP, which provide *free or low cost health insurance to eligible participants,* are eligible to receive this dental preventive service. Although adolescents are not covered, medical providers can be reimbursed for their counseling or health education services as a part of the anticipatory guidance component for EPSDT during a well-child visit. If provided with incentives, such as reimbursement, medical providers may be more motivated to emphasize the importance of oral health during their well-child visits. It is important to explore the consistency and types of preventive oral health education provided to early adolescent patients during their annual visits, as well as determine how medical providers perceive the preventive dental health needs of their

adolescent patients. Achieving these goals will allow an opportunity to include more tailored conversations about necessary oral health behavior change.

The American Academy of Pediatric Dentistry (2014) anticipatory guidance (i.e., recommendations for the middle childhood and early adolescent ages) demonstrates that competing health education topics limits the priority placed on oral health and its relation to overall general health and wellness. Although oral health is included as a recommended topic to be discussed, adolescence is a period in which special attention in development can be tied to other important topics, such as physical activity, relationships and connectedness, mental health, substance abuse, violence and injury prevention with sports, and sexual health behaviors (Hagan et al., 2008; Lewis, Grossman, Domoto, & Deyo, 2000). Adolescence is also a time for immunizations that are recommended to protect against specific sexually transmitted diseases, such as Human Papillomavirus and others that protect against virus strains (Hagan et al., 2008; Lawrence et al., 2009; McNeely and Blanchard, 2009). Because these multiple topics are necessary for a well-child visit, there is a potential for medical providers to prioritize which topics seem most relevant for their patient. This prioritization can, consequently, force oral health to be an insignificant topic and is not carefully addressed. But, as children age, caries risk increase, making it essential to ensure the integration of oral health in medical settings for children and adolescents.

2.6 COLLECTIVE ACTION AND SYSTEMS CHANGE

The collective impact approach is a concept in healthcare systems to establish collaborations between public health partners with a goal of improving societal health outcomes. In 2011, Kania and Kramer defined the term ‘collective impact’, as the

grouping of specific actors from varying or similar systems who are working together towards a common social issue. Working as a collective group towards a common goal fosters opportunities for partnership development, collaborative initiatives between private and public sectors, and opportunities for systems-level change (Kania and Kramer, 2011). Collective impact might be an appropriate approach to address collaborative opportunities within the healthcare delivery system for oral health integration in primary care medical settings. In this way, oral health disparities can be targeted through not only the dental healthcare systems, but through medical health systems of care.

It is critical that opportunities for systems to be enhanced are not overlooked or dismissed. Systems of healthcare can be particularly difficult for the underinsured and non-insured to navigate; all too often, inadequate income-based health services (e.g., hospitals, free-clinics, and sliding fee scale mechanisms) can lead to detrimental oral health outcomes for children and adolescents. For example, 12- year old Deamonte Driver died in 2007 of what started as a toothache, in which a routine extraction costing about $80 might have saved his life. In this tragedy, Driver's mother had a lapse in Medicaid coverage, difficulties with scheduling and transportation, and events of homelessness. These factors limited her ability to fully devote the attention needed to her son's toothache. In her search for alleviation for Deomonte's pain, she ultimately received medicine for his headache, sinusitis, and abscess medication for his toothache, instead of the much-needed tooth extraction that would have saved him from the abscess' bacterial spread to his brain. Driver's mother had limited access to dental coverage due to her income status, limited access to dental providers who accept Medicaid, and

misinterpretation of standards of care for poor children (Otto, 2007). A lesson learned from this tragedy is the opportunity to understand systems-level changes that can be implemented to ensure that such an adverse outcome is not repeated.

Systems-level thinking or system theory is a framework that evokes the connection between multiple components within a network or system. It requires consistent engagement among members within the network, interprofessional thought processes, and a passion to change how a system interacts by those involved (Leischow and Milstein, 2006; Leischow et al., 2008). In order to reduce oral health disparities and change the perception that oral health can only be improved by dental professionals, innovative models for action research, problem framing, and evidence-based public health investigations should be informed by systems-level thinking. Systems-level changes in policy can act as a driver for oral health improvement, particularly as more primary care institutions are encouraged to adopt preventive dental health competencies (U.S. Department of Health and Human Services & Administration (HRSA), 2014)

As recognized actors within the healthcare delivery system, primary care providers have hidden opportunities to include oral health messages within their visits and throughout their practice settings. Promoting medical-dental collaboration as a systems-level approach in SC has the potential to reduce the prevalence of oral health diseases and related health illnesses linked to poor oral health. Encouraging medical and dental providers to work collectively will provoke cross-talk between these two actors in the health system that can ultimately strengthen the oral health of our state's adolescent populations.

2.7 ADDRESSING THE SILENT EPIDEMIC: ORAL HEALTH PROMOTION AND AWARENESS

According to the Ottawa Charter for Health Promotion, health promotion has been described as "the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment" (1986). Because health can be influenced by multiple determinants, including the health system itself, health education for changing individual behaviors is not enough (Kickbusch, 2003; Koelen and Van Den Ban, 2004; Sharma and Romas, 2011). In order to change health behavior and attain social equality, health promotion must move beyond healthcare and education into more practical opportunities for systems-level change.

Acknowledging the ecological aspect of health promotion is an appropriate lens through which to view the role of medical and dental professionals. Although included within a larger institutional network, healthcare providers can be trained on the importance of integrating oral health messages within their primary care settings, which creates an opportunity for them to collaborate with dental health professionals. Increasing awareness among these actors at the institutional level will ultimately lead to the ability to provide adolescents with the knowledge necessary to proactively make decisions about their oral health (Brown, 1994; Glanz, Rimer, & Viswanath, 2008; McLeroy et al., 1988).

Proper oral health care and adequate dental health behaviors are crucial for overall health and wellness. Creating messages for positive oral health behaviors and preventive

mechanisms should be included in educational curriculums designed to target adolescents, parents, and healthcare providers. Moreover, it is critical to use behavioral science frameworks that underscore the seriousness of changing oral health to improve dental health status. Oral health promotion should be a priority for public health researchers, dental health professionals, medical providers, families, community liaisons, policymakers and adolescents. By working together, these members of the collective leadership can make strides towards reducing the debilitating effects of poor oral health (Benjamin, 2010).

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 SIGNIFICANCE

> *Tooth decay consistently affects more than one-fourth of U.S. children aged 2–5 years and half of those aged 12–15 years. About half of all children and two-thirds of adolescents aged 12–19 years from lower-income families have had decay. The burden of oral health disparities have also been linked to the increasing costs of care, for example in 2010, an estimated $108 billion was spent on dental services in the United States* (Center for Chronic Disease Prevention and Health Promotion, 2010; SC Department of Health and Environmental Control, 2011).

Addressing preventive dental health within primary care settings is consistent with a more systems-level approach to reducing oral health diseases. It is likely that using multiple providers within the healthcare system will increase the probability of raising dental health awareness among adolescents, leading to better overall dental health eventually resulting in decreased effects of poor oral health(U.S. Department of Health and Human Services & Administration (HRSA), 2014). In this regard preventive dental health is a unique model that will extend the reach of dental services to more remote areas. Specifically, rural areas with extreme dental health professional shortage areas will benefit from the inclusion of preventive dental health in medical homes.

Acknowledging the importance of preventive techniques for oral health will contribute to the reduction of dental health disparities. Increasing the awareness of dental health as an epidemic will encourage systems of care that encourage medical and dental health professionals to play a stronger role in child and adolescent oral health. This research project makes a significant contribution in that it evaluated the process of preventive dental health integration within pediatric primary practices. It also explored the perspectives of pediatric providers on preventive dental health integration within their practices, an evaluation opportunity that has yet to be explored in public health research. In addition, the results of this study can assist the continued efforts in medical-dental collaboration in SC.

3.2 INNOVATION

This study explored the feasibility of integrating preventive dental health in pediatric primary care practices in SC by better understanding providers' perspectives about the preventive dental health integration process. Many studies focus on policy changes that have the potential to affect children and adolescents' dental health and their access to and utilization of Medicaid benefits (Decker, 2011; Edelstein and Chinn, 2009; Nietert, Bradford, & Kaste, 2005); few explicitly focus on the effects of ecological and contextual factors that may improve oral health behaviors. A qualitative approach permitted a grounded understanding of the pediatric primary care providers' experiences with preventive dental health integration. This emic perspective provided a more nuanced understanding of how preventive dental health can be integrated in pediatric primary care settings. To date, no study to our knowledge has assessed the perspectives of pediatric providers to better understand opportunities for preventive dental health for

children and adolescents. The QTIP project providers revealed important information on key perceptions, barriers, and best practices about preventive dental health that can affect the oral health outcomes of children and adolescents living in SC. This study also explored the importance of medical provider buy-in and support for preventive dental integration and identified how medical providers can act as a first line of defense for preventive dental health in children and adolescents.

3.3 STUDY APPROACH

The study had two specific aims: SA1) To examine the process by which primary care pediatric practices integrated preventive dental health based on QTIP quality health improvement recommendations, and SA2) To explore primary care pediatric provider perspectives on preventive dental health integration. These specific aims were accomplished by conducting a process evaluation of preventive dental health adoption by QTIP pediatric primary care practices and an assessment of the pediatric physician and pediatric primary care professionals' perceptions about the integration of preventive dental health in their organizations. Accomplishing these aims provided a deeper insight into the contexts and processes involved in medical-dental collaboration initiatives. Therefore, the overall goal of the study was to understand the process by which preventive dental health can be integrated within pediatric primary care settings in SC.

QTIP Demonstration Project

The dissertation study was situated within a grant opportunity announcement funded by CMS. The five-year CHIPRA QI – QTIP Demonstration project was a partnership between the SC Department of Human and Health Services, the SC Chapter of American Academy of Pediatrics, the University of South Carolina, the SC Office of

Research and Statistics, CareEvolution, and Thomson Reuters (SC Department of Health and Human Services, 2014). As one of the 10 states awarded, SC selected 18 primary care pediatric practices across the state to participate in the grant. There were three main categories focused on from the parent grant objectives and these categories were chosen based on the interest and the capacity of the partnership efforts, in completion of the CMS grant application. These categories included the establishment of QTIP and improvement in the quality of children's healthcare through measures of quality, promotion of health information technology, patient centered medical home expansion, and evaluation of provider-based models (SC Department of Health and Human Services, 2014) (Appendix B).

Consistent with the initiative's efforts to address both mental and physical health for the betterment of children's health outcomes, a component of this grant was the pursuit of the National Committee of Quality Assurance Patient-Centered Medical Home certification for all participating practices (SCDHHS, 2014). The project was also dedicated to a collection of CHIPRA Quality Measures (Appendix C), one of which was directly focused on total eligible patients that will receive preventive dental health services through Medicaid services. A Learning collaborative was developed in order to launch all the quality improvement efforts of this grant. Learning collaboratives were meetings held to disseminate knowledge about quality indicators, quality improvement recommendations, information for planning strategies and Plan, Do, Study, Act (PDSA) cycles, implementation of the electronic medical records and health information exchange. As a part of the Institute for Healthcare Improvement Breakthrough Series (Institute for Healthcare Improvement, 2003), PDSA cycles were used as cyclical

examinations in their practice to set goals for preventive dental health integration. Each Learning collaborative was held during the annual Community Access to Child Health (CATCH) meeting. CATCH is a national program of the American Academy of Pediatrics that increases children's access to health services and a medical home by supporting local pediatricians to collaborate within their communities (Burton, 2003; Soares et al., 2014). The Learning collaborative meetings are dedicated to engaging pediatric care providers to use quality improvement and work in collective, team efforts to achieve the goals of the QTIP demonstration project. It was not clear whether the QTIP demonstration project used a social science theory or perspective to guide their implementation. Structures in place to ensure the implementation of the project included the following: a lead practitioner to implement the quality improvement efforts within the practice and an internal QI team, stipends and assistance for the 18 pediatric practices, hosting Learning collaboratives, and providing technical assistance. Accomplishment of the project goals was designed to be monitored by a health research team, including the Area for Healthcare and Research Quality, Institute for Families in Society and CMS national evaluators (SC Department of Health and Human Services, 2014).

The current study was guided by the Ecological Perspective (Bronfenbrenner, 1997; Fisher-Owens et al., 2007; McLeroy, Bibeau, Steckler, & Glanz, 1988) and situated in a constructionist qualitative approach. This research used both directed content analysis and qualitative interviews to evaluate the process of preventive dental health integration within pediatric primary care practices. Directed content analysis was used to assess the documents of the parent study, including: PDSAs for integration intention of preventive dental health, attendance logs for the Learning collaborative, grant application

for the QTIP demonstration project, Learning collaborative PowerPoint presentations, educational and training materials as it relates to preventive dental health integration and other aspects of the parent study. These documents acted as information sources to better understand the process of preventive dental health integration within the practices. Qualitative interviewing methods were used to better understand the QTIP participants' perceptions on preventive dental health integration.

3.4 CONCEPTUAL FRAMEWORK

Process Evaluation of Preventive Dental Health Integration

An implementation evaluation or process evaluation is essentially aimed to document whether a program has been carried out as intended (that is implemented with fidelity) and seeks to identify "why" or "why not"? Process evaluation is largely underused, despite the fact that it can affect promotion and prevention program outcomes and that quality implementation can lead to better rates of success and potential sustainability (Durlak and Dupre, 2008). Public health theory and relevant oral health literature were the initial guidance for the development of codes and derived themes from the data (Hsieh and Shannon, 2005; Weber, 1990). We used principles of process evaluation – dose delivered, reach, fidelity, and dose received and response (Bradley et al., 2009; Linnan and Steckler, 2002; Saunders, Evans, & Joshi, 2005) – to guide our examination of the actual preventive dental health integration process. Directed content analysis identified how QTIP participants actually integrated preventive dental health within their primary care settings and the extent to which participants engaged with QTIP training and materials for preventive dental health integration.

Ecological Perspective

The ecological perspective focuses on multiple levels of influence that can shape health behaviors, health outcomes, and the interactions of these relationships at each level (Bronfenbrenner, 1997; Dumitrescu, Wagle, Dogaru, & Manolescu, 2011; Fisher-Owens et al., 2007; Glanz et al., 2008; Glanz, 1997; McLeroy, Bibeau, Steckler, & Glanz, 1988). Numerous models have been developed to understand the hierarchal structure of behavioral influences on health, and these models have been described in various ways (Bronfenbrenner, 1997; Fisher-Owens et al., 2007; Glanz et al., 2008; Lewin, 1951; McLeroy et al., 1988; Stokols, 1992). This dissertation research used an adapted version of McLeroy's model of five sources of influence. Figure 3.1 depicts the adapted model, where dental health outcomes for children and adolescents are impacted by intrapersonal, interpersonal, institutional/organizational, community, and public policy factors (Figure 3.1 Preventive dental health in primary care settings).

In this study I focused on the primary care providers, included within the institutional level, which is greatly influenced by public policy (i.e., insurance policies and reimbursement and governmental legislation for disease management). It is important to understand how the integration of preventive dental health into primary care settings is influenced by public policy at both the community and the institutional level. Primary care providers are situated within a larger institutional level, which includes other structures and actors that can promote positive oral health (e.g., dental professionals, educational establishments, and public health organizations). This institutional level affects the resources available to families and children, which can include accessibility to appropriate educational, dental and health and welfare services. Healthcare providers can be encouraged to integrate oral health messages within their

primary care settings, creating an opportunity to change the culture of their organizations and influence their institutional network. More specifically, healthcare providers can collaborate with dental health professionals and other actors within the institutional level to promote preventive dental health. These interactions can lead to the promotion of oral health at the community, interpersonal and intrapersonal level factors, which can affect oral health behaviors, and ultimately reduce oral health disease disparities (Fisher-Owens et al., 2007).

As structures within the institutional level, primary care pediatric providers exist in a complex system that shapes the development of individuals situated within other complex systems, outside of their system level (Bronfenbrenner, 1997; Crosby, Salazar, & DiClemente, 2011). An individual's response or behavior will likely be shaped from his or her own human interest and activity within their ecological level (Montano and Kasprzyk, 2008; Romanyshyn, 1971). This framework helped me to understand how pediatric primary care providers can respond to including preventive dental health in their respective practices, the structure of their organizations, and their cultural work environments. Because the McLeroy framework organizes the ways in which contextual influences interact with individual actors of a system, primary care providers' perspectives are key to providing insight into how surrounding systems in the ecological model influence providers' decisions about integrating preventive dental health within their practices.

Qualitative Approach

This dissertation was a qualitative study based on a constructionist approach. Most qualitative studies are focused on meaning-making and how it can use perspectives

from individuals or groups to further the understanding of a studied phenomenon (Charmaz, 2002; Hollway and Jefferson, 2000). Using a qualitative approach in this study allowed me to focus on the importance of the context of behavioral actions and influences by historical, ecological, socio-economic, political, cultural and temporal conditions, as well as subsequent interpretations of those interactions (Kelly, Terre Blanche, Durrheim, & Painter, 1999; Patton, 2002). In contrast to the rigid attributes of quantitative scientific research using controlled experimentation, many qualitative approaches are more flexible and emphasizes the understanding of human experience, as this is a vital aspect of this approach (Fossey et al., 2002; Greene, 1994).

I explored the perspectives of the QTIP participants, and specifically inquired about their experiences with preventive dental health integration and factors that might influence the integration of preventive dental health in their pediatric primary care settings. Through qualitative research methods, including qualitative interviews with open-ended questions, I aimed to capture what the QTIP participants perceive and/or believe to be the most feasible strategies used to integrated preventive dental health in their practices (Maxwell, 2012; Patton, 2002). QTIP participants provided ‘‘their reported perceptions, “truths,” explanations, beliefs, and worldview” (Patton, 2002) regarding preventive dental health integration. This type of data collection promotes significant potential for producing rich and descriptive data on this specific concept of medical-dental collaboration (Miles and Huberman, 1994).

Study Rationale

Given the inability to escape researcher subjectivity (i.e., bringing past experiences, thoughts and perspectives to the study), a purely emic approach of the study

would not be easily attained. In contrast, a purely etic approach to the study would potentially eliminate unique meanings, ideas and key concepts of participant responses (Morris, Ames, & Lickel, 1999; Olive, 2014; Peterson and Pike, 2002). Valuing the participants' beliefs and the context within which they operate will allow me to include an emic perspective. Valuing the perceived beliefs and utilizing explicatory terms and nuances provided by the participants is referred to as emic. (Miles and Huberman, 1994; Olive, 2014; Patton, 2002; Peterson and Pike, 2002). The ecological framework and qualitative approach allowed me to tell the story from the participant's perspective, while at the same time addressing concepts reflective of the ecological framework, an existing theory. Figure 3.2 depicts the research conceptual model for this study (Figure 3.2 Research Conceptual Model).

Self in the Study

In this study, I was responsible for primary data collection. This notion of 'researcher as instrument' is often seen as a threat to qualitative data interpretation and findings. In contrast to quantitative data collection tools, the data interacts directly through the human research instrument, rather than a dichotomous questionnaire or digitized survey (Merriam, 2002). This direct interaction allowed the researcher to inform the interpretation of the data, restricting the claims to be subjective to the researcher's lens (Bryman and Cassell, 2006; Merriam, 2002; Roulston et al., 2008). But, advantage to this concept of 'researcher as instrument' is that it created an opportunity to process data immediately, clarify and summarize as the study evolves, and adapt necessary research techniques to the circumstances and context of the study (Greene, 1994; Hsieh & Shannon, 2005; Merriam, 2002). In many cases, it is also important for

researchers who, by necessity, are facilitating and analyzing the data collection within a study to provide a personal reflection statement. The personal reflection statement mainly focuses on both the positionality and epistemic orientation of the researcher.

Positionality

As an academic scholar pursuing a Doctor of Philosophy in Public Health, I was different than my participants in educational training and career choice. But, our similar interest was in our dedication to service to children and adolescents living in South Carolina. My academic status did not really interject an equal level of educational power and intellectual gain. But, my desire to learn from the participants and current graduate student status played a major role in easing participant's thoughts of power and knowledge related to educational hierarchy. The participants from this study did differ in age, but at times were very similar. I intended to make the participants feel comfortable when responding to the questions and disregard any age difference they may assume during the interview session. Building adequate rapport with the participant assisted me in retrieving true perspectives and rich information related to research questions proposed. I did not elaborately discuss a lot about my upbringing or economic status with my participants, in order to provide an open space for the participant and me to have meaningful conversation. I did not want the participant to feel as though they are above or beneath either my economic status or upbringing, as well as feel they needed to change their responses based on their thoughts about how I (as the interviewer) think they should respond. In regards to race, I believe that a variety of participant perspectives will equally contribute to knowledge known about child and adolescents oral health disparities. Furthermore, to relieve any uncomfortable thoughts or feelings of

participants I was sure to define that the interview is to gain further knowledge on their perspectives as QTIP participants related to preventive dental health integration in pediatric primary care settings.

Epistemic Orientation

As a collegiate scholar I locate my knowledge through literature searches and adequate experts of field experience (i.e. mentors, professors, pioneers of oral health interventions). Knowledge is something that I attained through multiple avenues, whether it is through lived experiences or academically learned scholastics. Attaining knowledge is somewhat subjective in that it is not apparent and can be implicit or described through explicit mediums. Throughout my lived experiences (i.e. Masters training, community-based research, internships), I have observed a desperate need for expanded scientific research studies and public education in reference to oral health diseases. Through *MUSC Gives Back* a community service initiative, I have engaged in promoting oral healthcare at the Annual Bridges to Health INFO Kids Fair, since 2009. I forged an effort to engage parent guardians and students to learn about what they can do at home to improve their oral health, in order to eliminate the prevalence of oral health disparities in the lower east side Charleston County School District, where there is a higher percentage of underserved residents. Through my previous Community-based participatory research team participation within a local study of Charleston County, *Hollywood Smiles*, I have identified a large gap currently exists between current experimental/clinical trials, oral disease prevention, and promotion of healthy oral care habits and behaviors of adults within rural areas of South Carolina. Between the years of 2010-2012, I worked with a community partner, city officials and leaders from the nearby

town of Hollywood, SC to improve the oral health of this community. In recent years, I have been involved with multiple networks that support the reduction of oral health disparities, including the following: DentaQuest Foundation, SafetyNet Solutions, SC Primary Care Association, USC - Cocky's Reading Express, Carolina Health Centers, SC DHEC Division of Oral Health, Medical University of South Carolina, and USC – Interprofessional Education. There is no real true criterion that I utilize to locate knowledge. Whether gaining knowledge from lived experiences, formal practice in the field, classroom practice with graduate coursework, or published literature, I value each within the context of their contribution to my individual usage and comprehension. My previous lived experiences have consistently prepared me for this study's initiatives, allowing my knowledge to be both subjective and objectively learned.

3.5 SETTING AND SAMPLE DESCRIPTION

Children and adolescents in the southern states have consistently poorer outcomes for most indicators of children's health and well-being, particularly oral health (IOM, 2011; Satcher, 2000; Yuen et al., 2011). In SC, 15 practices from multiple counties of the state were initially selected to participate within the QTIP demonstration project, which was later increased to 18 practices (see Appendix D for QTIP participants within each county). The sample was a heterogeneous mix of pediatric primary care practices that varied by location, size, stages for integration of mental health and electronic medical record adoption. Collaborating with the QTIP participants to address children and adolescent oral health disparities can provide an appropriate opportunity to identify the "voice" and perception of actors within the environment who directly serve the target population.

Physicians and staff from each of the 18 practices, also known as "QTIP participants," was the study population for this study. These members mainly included the office manager(s), medical director(s), clinical staff and the lead practitioner(s). QTIP participants have received technical assistance site visits, attended Learning collaborative meetings, received quality improvement recommendations, are using standardized mental health screening tools, provided reports of PDSAs, provided best practices for electronic medical records, and pursued Patient-centered medical home (PCMH) certification. All project activities for this dissertation took place in SC and travel for interviews did not extend beyond the boundaries of the state, if not completed by phone.

3.6 RECRUITMENT

In the larger study, information about the QTIP Demonstration Project was included within the newsletter for the SC Chapter of the American Academy of Pediatrics and was spread by word of mouth through the medical and dental community in SC. There were at total of 28 practices that responded to the opportunity to become a participating practice within the study. Interested practices completed an application that included questions about their interest in electronic medical records, mental health, PCMH, Medicaid populations and Quality improvement. All practices were scored based on their responses and were selected based the following criteria: a minimum of 26% Medicaid patients, 5 years of commitment, and overall willingness to participate within the study (n=18).

In the current study, criterion sampling was used for the recruitment of participants for qualitative interviews (Creswell, 2012; Patton, 2002). QTIP participants

were recruited in-person at the August 2014 Learning collaborative, as well as by phone and email. Participants in this study were not offered a monetary incentive, but were be provided with a formal thank you letter and complimentary, digitally-formatted preventive health materials for their practice. I ensured that recruited participants met the eligibility criteria prior to conducting any interviews for data collection.

Inclusion Criteria

All participants were required to be actively involved in the QTIP demonstration project (i.e. be a QTIP participant). Participants were required to speak English.

3.7 DATA ACQUISITION AND PROCEDURES

Data Acquisition

The key stakeholders who facilitated data acquisition were the QTIP project director, QTIP participants, and the Department of Human Health Services and CMS. QTIP project director, Lynn Martin (Martinly@scdhhs.gov) was my primary contact and agreed to support my request to access and analyze data collected from the QTIP project (Appendix E). The program director also agreed to allow me to attend the Learning collaborative meeting in August 2014. This meeting provided me with direct access to QTIP participants for potential interviews and additional materials that were used within the project study. The project director received a summary of my dissertation requirements, aims and interests. She also received, per her request, an itemized listing of the data I would need to access and evaluate as a part of the process evaluation. Data to be retrieved included the following:

- Original CHIPRA Grant Notification
- Original CHIPRA Grant Application

- Developed PowerPoint trainings/presentations
- Oral Health Materials/Educational Curriculum
- PDSA cycles
- Technical Assistance site visit logs, calendar and agenda
- Learning collaborative Agenda(s)
- Learning collaborative Attendance Logs/Sign-In sheets
- Annual Progress Reports

Researcher as Instrument

In qualitative research, the researcher as instrument is an accepted method for data collection (Denzin and Lincoln, 2005; Marshall and Rossman, 1995). In this study, I was the key person collecting responses from the interviews and conducting the analysis of data sources. I had close interactions with the data and participants through facilitation of the interviews and directed content analysis of QTIP demonstration project documents. Participants of the study were able to share their personal perspectives, allowing for rich and emergent themes to be revealed. Interviews were conducted in an appropriate manner based on open dialogue and a semi-structured interview guide that included open-ended questions. As I facilitated the conversation, I sought to place the participant at ease by engaging in the dialogue and identifying any non-verbal cues from the participant.

3.8 DATA MANAGEMENT

Management and Analysis Software

Qualitative interviews were analyzed using MAXQDAplus®, which is a qualitative data analysis software ("MAXQDA, software for qualitative data analysis,

VERBI Software – Consult – Sozialforschung GmbH," 2014). In this way, MAXQDAplus® also served as an organizational management tool for codes, themes, and categories from audio recorded transcripts and document analysis. Process evaluation data was analyzed using an excel spreadsheet matrices. Data from both Specific Aim 1 and Specific Aim 2 will undergo a formal coding process and emergent themes were revealed through analytic procedures.

3.9 SPECIFIC AIM 1: METHODOLOGY

Process Evaluation

The process evaluation, retrospective in nature, documented the implementation of preventive dental health integration across the QTIP pediatric primary care practices in SC. All data was collected following the last year of implementation (2014). All reporting for the process evaluation was summative and delivered at the end of the dissertation study. Table 3.1 outlined the items that will be measured in the process evaluation plan including the process evaluation domain, research questions, data sources, tools and procedures, and data analysis procedures for each aspect of the process evaluation (Table 3.1 Process Evaluation Plan). The process evaluation domains that were measured in this study, which included the following:

1. Fidelity: A directed content analysis was conducted to identify that project objectives for oral health were fulfilled according to the original application submitted for the CHIPRA QI – QTIP demonstration project.
2. Dose delivered: To demonstrate that oral health materials and trainings were achieved as a result of QTIP quality health improvement recommendations a directed content analysis of Learning collaborative presentations, oral health

educational materials and resources, peer reflection presentations, and annual progress reports.

3. Reach: A directed content analysis was conducted to demonstrate that all practices were represented and participated in each Learning collaborative directed towards oral health.
4. Dose received: The current practices of preventive dental health integration within the QTIP practices was a result of QTIP quality health improvement recommendations were accomplished through directed content analysis of PDSAs, annual progress reports, and technical assistance site visit logs.

Coding and Analysis

Analysis for the data was guided by the dissertation Specific Aim 1, ***to examine the process by which primary care pediatric practices integrated preventive dental health based on QTIP quality health improvement recommendations***. In this study, a directed content analysis was used to analyze process data (Hsieh and Shannon, 2005; Mayring, 2000; Potter and Levine-Donnerstein, 1999). Using this approach allowed exploration beyond the typical account of counting words and text coding into explicit categories that represent similar meanings, often described with statistics in quantitative content analysis (Hsieh and Shannon, 2005; Weber, 1990). Instead, we used a rigorous and interpretive technique to identify the presence or absence of major themes (Altheide et al, 2008; Bowen, 2009) about the extent to which primary care pediatric practices integrated preventive dental health. First, a preliminary code schematic was derived, using process evaluation principles and research literature related to interprofessional collaboration in medical and dental settings, to identify key concepts for

initial coding categories. Coding categories were characterized by definition using relevant theoretical principles and research literature (Hsieh and Shannon, 2005; Potter & Levine-Donnerstein, 1999). A matrix was developed using a spreadsheet application – Microsoft excel to track documents collected, examine data, and identify patterns to be categorized into emergent themes that reflect the data. Data was further analyzed to establish any new categories or subcategories for existing codes. As a part of the analyses, memoing, peer debriefing and audit trails were conducted in order to ensure trustworthiness of the data (Creswell, 2012; Hsieh and Shannon, 2005; Patton, 2002). Memos consisted of written reflective notes by the researcher regarding what was learned from the data, which assisted in thematic conceptualization; peer debriefing involved consistent meetings and feedback with QTIP project director regarding questions about data sources; and audit trails were conducted to examine major themes and accuracy of operational definitions of categories derived from the data with QTIP project director. The directed content analysis primarily focused on self-reported documents from each practice; however, where these were not available, similar documents were provided, such as including summative Learning collaborative presentations and annual reports.

3.10 SPECIFIC AIM 2: METHODOLOGY

Qualitative Interviews

In an effort to answer the research questions associated with my specific aims, qualitative interviews were used for the dissertation study. The research questions mainly focused on the thoughts, perceptions, experience and knowledge of the QTIP participants; these types of information can only be obtained through a conversational meeting or verbal interaction and communication. Compared to focus groups, qualitative

one-on-one interviews allow the researcher to ask more probing questions and gain more detailed information on a particular topic (Patton, 2002; Singh, Mathiassen, Stachura, & Astapova, 2010; Ulin et al., 2004). The number of interviews was determined based on reaching a point of saturation (Glaser, Strauss, & Strutzel, 1968; Miles and Huberman, 1994; Patton, 2002; Ulin et al., 2004), therefore I conducted twenty-two qualitative interviews to elicit QTIP participants' perceptions and additional emerging themes regarding preventive dental health integration.

The QTIP participants were first informed of my role as a Doctoral candidate and purpose of the study. Following the participant's agreement to participate, a date and time were decided upon for the interview. Before initiating the actual interview, I provided a consent and information form to be signed by the participant. I used a semi-structured interview guide with open-ended questions to fully capture the responses of the participants interviewed. The guide was developed to ensure that all research questions are addressed within the interview, but enabled the researcher to probe on themes that emerged from the participant's point of view (Appendix G). The guide was based on the research study goals, interprofessional collaboration, ecological theory and QTIP quality improvement recommendations for preventive dental health integration. Table 3.2 outlines how the interview guide addresses each specific aim and research question (Table 3.2 Interview Guide by Specific Aims and Research Questions).

Each interview lasted approximately 25-65 minutes and was audio recorded for transcription, at the consent of the participant. Audio recordings were transcribed verbatim and analyzed using qualitative data analysis. The data was collected using face-to-face (20%) or phone (80%), qualitative interviews conducted by the researcher, based

on the availability of the QTIP participant. The face-to-face interviews took place at a location designated in SC, based upon comfort and convenience for participants. During the interview, the researcher also took hand written notes to complement and corroborate the data recorded.

Coding and Analysis

Analysis for the data was guided by the dissertation Specific Aim 2, ***to explore primary care pediatric provider perspectives on preventive dental health integration***. This was a qualitative study using interviews and a grounded theory approach to data analysis. Meaning that I used a structured approach to analysis based on grounded theory, but did not describe or create a new theory. Using this approach allowed me to use principles of a more open-coding process that will use both theoretical frameworks for coding and also allowed for codes to emerge from the data collected. An a Priori code list was developed before carefully examining the data and was used as a part of the initial coding process (Appendix F). I used the methodological process of open, axial, and selective coding. (Corbin and Strauss, 2008; Creswell, 2012; Glaser et al., 1968; McMillan and Schumacher, 2014). The procedures were based on the constant comparative method in continuous data analysis. (Corbin and Strauss, 2008; Creswell, 2012; Glaser et al., 1968; McMillan and Schumacher, 2014). Analytic steps: 1) development of a preliminary code book that best represents participants reported experiences; 2) three experienced qualitative researchers independently coded 10% of the interviews using the preliminary code book and develop additional codes based on emergent themes and a Priori codes, 3) coding from the interviews were compared; 4) page-by-page comparisons were conducted, and differences in application or new code

development were discussed by the research team until a consensus is reached; 5) final code book modification; 6) one researcher used the final code book to code all interviews; and allowed for additional themes to emerge 7) selective coding was conducted to group similar themes 8) matrices were developed to explore responses across participants and compare repetition of themes within an interview and across interviews, patterns of responses across participants, and differences in responses. The study documents were downloaded into MAXQDAplus® and a preliminary draft codebook was developed based on the conceptual framework of the study (Corbin and Strauss, 2008; Glaser et al., 1968; Ulin et al., 2004). I compared data interpretations and secure agreement on the elements of the final codebook with two additional coders. This process included the initial identification of major categories, sub-categories, themes and later understanding relationships between emergent themes from the data, which allowed further understanding of the content related to the conceptual framework supporting the research.

3.11 DATA QUALITY

To ensure the quality of the data used within this study the researcher conducted member checks, peer debriefing, advisor consultations, and data triangulation (Creswell, 2012; Patton, 2002; Ulin et al., 2004). Member checks provide the opportunity to ensure that the data was representative of the participants' responses within the qualitative interviews. Member checking consisted of reviewing participant's actual responses to the interview guide questions and discussing major emergent themes from the study to gain their perspective on the researcher's interpretation of the data.

Peer debriefing included a variety of individuals involved to ensure the quality of

the research. An associate professor, Dr. Christine Blake, experienced with qualitative research methods provided feedback throughout the research process by examination of the interview guide, reviewing an established number of transcripts, providing me with alternative explanations, and was also available to discuss coding, categories, and themes. An evaluator experienced with oral health interventions; Dr. Amy Martin, provided insight into structured methods to interpreting and reporting the data in the context of a systems level approach. Consistent feedback and engagement with the project director, Lynn Martin of the QTIP participants assisted in the quality of the data reported and the actual acquisition of documents included within the document review and analysis.

I also held regular meetings with my primary advisor, Dr. Mindi Spencer, to receive consistent feedback about research progress. The advisor was provided with coding list, preliminary themes and categories. Dr. Spencer and I reviewed all concepts and interpretations of the data and periodically received feedback from the research assistant professor experienced with qualitative methodologies.

Triangulation allows for the use of multiple data collection methods to enhance the quality and trustworthiness of the data (Denzin and Lincoln, 2005; Glesne and Peshkin, 1992; Patton, 2002). Knowing that no single data source can address multiple research aims, two or more methods are ideal to address research questions and limit vulnerability to errors in interpretation and analysis (Denzin and Lincoln, 2005; Glesne & Peshkin, 1992; Patton, 2002). This study used qualitative interviews, process evaluation and directed content analysis to examine the concepts of preventive dental health integration in primary care settings from a variety of perspectives.

3.12 DISSEMINATION OF RESULTS

As part of the dissemination plan, I prepared a brief report outlining the key findings for the QTIP project director. Manuscripts 1 and 2 will align with each specific aim. Additionally, I presented dissertation research findings to USC faculty, staff, and students to fulfill doctoral program requirements. Findings are targeted to disseminate through peer-reviewed journals and presentations to (1) the study participants and (2) at local and national conferences/meetings, following recommendations received through the dissertation defense.

Table 3.1 Process Evaluation Plan

	Process Evaluation Domain	Research Question	Data Sources	Data Analysis & Synthesis
Specific Aim 1: To examine the process by which primary care pediatric practices integrated preventive dental health based on QTIP quality health improvement recommendations	• Fidelity • Dose delivered	**RQ1** To what extent did primary care pediatric practices receive materials and trainings designed to provide QTIP quality health improvement recommendations for preventive dental health?	• Program director • Project CHIPRA Demonstration Grant objectives • Review of attendance logs from Learning collaborative meetings, Technical assistance site visit logs • Learning collaborative Meeting Agendas	• Description of procedures • Emergent themes from directed content analysis
	• Reach • Dose received and Response	**RQ2** How did primary care pediatric practices integrate preventive dental health as a result of receiving QTIP quality health improvement recommendations?	• Review of PDSAs • Annual Progress reports	
Specific Aim 2: To explore primary care pediatric provider perspectives on preventive dental health integration		**RQ5** How do pediatric providers describe their experiences with preventive dental health integration as a QTIP participant?	• Qualitative interviews	• Emergent themes from qualitative interviews • Recommendations for preventive dental health integration via the QTIP participant perspectives

Table 3.2 Interview Guide by Specific Aims and Research Questions

General Occupational Questions	Preventive Dental Health Integration Experiences	SA and RQ	Challenges	SA and RQ	Recommendations	SA and RQ
How long have you been practicing your profession?	• What is preventive dental health? What does it mean to you? • How can you help with prevention of dental health problems with your patients	SA 2 RQ3/4	• What are some of the challenges to integrating preventive dental health in primary care settings? PROBE: How do you address these challenges? PROBE: Describe any challenges that you have with patients receiving preventive dental health information in your office. PROBE: Describe how reimbursement for preventive dental health integration in primary care settings is a barrier.	SA 2 RQ5a	• Tell me how oral health can be best included within a well-child visit. PROBE: What would be your recommendations?	SA 2 RQ5b
What is your position/title? Description of your position/role.	• In what ways did your practice integrate preventive dental health within your clinical setting for your patients? PROBE: What types of aids or materials about preventive dental health do you use within your practice? PROBE: Where do you receive preventive dental health materials? PROBE: How did you talk to your patients about preventive dental health behaviors? PROBE: What were the roles and numbers of individuals in your practice who were involved with preventive dental health integration?	SA 1 RQ2 SA 2 RQ5			• Please describe what a primary care practice would need to integrate preventive dental health into their actual practice. PROBE: Would you need some type of incentive? (e.g. insurance reimbursements) PROBE: Would you need more infrastructure or change in organization? (e.g. additional staff or redesign of workflow) PROBE: Would you need more technical assistance and training on oral health prevention? PROBE: Is there any additional technology that you would need?	SA 2 RQ5
Where is the location of your practice?	• How has your participation in the QTIP project assisted you and your practice preventive dental health integration within your practice? PROBE: How did you use PDSA cycles to integrate preventive dental health within your practice? PROBE: In what ways did the QTIP Learning collaboratives help you to integrate preventive dental health within your practice?	SA 2 RQ5				

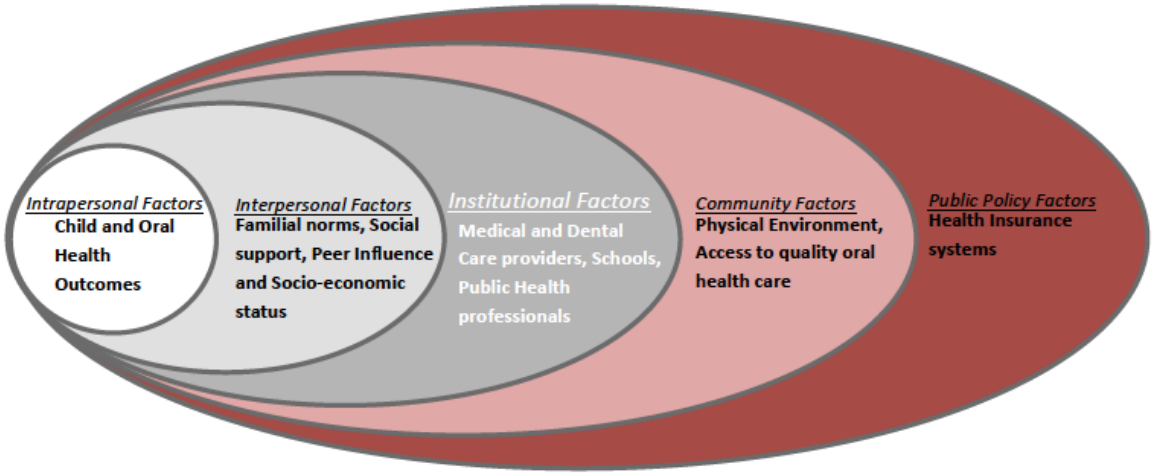

Figure 3.1 Preventive dental health in primary care settings

Adapted from:
McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. Health Education & Behavior, 15(4), 351–377
Fisher-Owens, S. A., Gansky, S. A., Platt, L. J., Weintraub, J. A., Soobader, M.-J., Bramlett, M. D., & Newacheck, P. W. (2007). Influences on Children's Oral Health: A Conceptual Model. Pediatrics, 120(3), e510–e520. doi:10.1542/peds.2006-3084

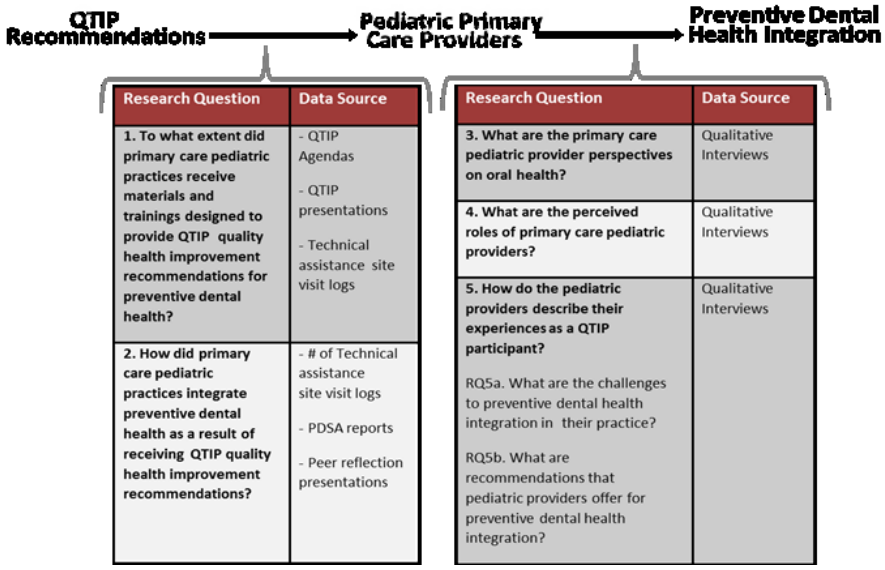

Figure 3.2 Research conceptual model

Adapted from:
Maxwell, J. A. (2012). Qualitative Research Design: An Interactive Approach: An Interactive Approach (p. 218). SAGE Publications.

CHAPTER 4

MANUSCRIPTS

4.1 MANUSCRIPT 1

Sinking our Teeth into Preventive Dental Health Integration: An Evaluation of an Oral Health Demonstration Project[1]

ABSTRACT

Background: Substantial racial, ethnic, and socioeconomic dental disparities exist among children and adolescents in the United States. The inclusion of oral health messages during primary care visits may be a way to promote positive oral health behaviors of child and adolescent patients and reduce disparities in oral health. The Quality through Technology & Innovation in Pediatrics (QTIP) demonstration project is a promising approach to integrate preventive dental health in primary care pediatric practices.

Purpose: To conduct a retrospective process evaluation to examine the extent and how primary care pediatric practices (n=18) integrated preventive dental health based on their participation in the QTIP demonstration project.

Methods: We conducted a process evaluation to identify how participants engaged with and integrated oral health within their practices using a qualitative approach by directed content analysis.

Results: We identified the extent to which QTIP practices' integrated preventive dental health in their medical settings as result of the QTIP demonstration project through preventive dental health training and development and QTIP participants adherence to demonstration project objectives. QTIP practices also demonstrate through Plan-Do-Study-Act (PDSA) reports how they included preventive dental health practices within their medical settings.

[1] Nelson JD, Spencer SM, Blake CE, Moore JB and Martin AB. To be submitted to *Journal for Healthcare Quality.*

Conclusion: By using principles of process evaluation, key findings suggests that pediatric practices engaged with trainings and materials and integrated preventive dental health in their practices, demonstrating evidence for the ability of medical-dental collaboration to be a useful model for integrating preventive dental health.

KEYWORDS

Medical-dental collaboration, organizational structure, preventive dental health; process evaluation; quality improvement

REVIEW OF THE LITERATURE

National calls from the Office of the Surgeon General for improving oral health behaviors, increasing access to care, and enhancing policy changes to improve oral health have led to strategic efforts to eliminate racial, ethnic and socioeconomic disparities in dental health (Bell, Huebner, & Reed, 2012). Although strides have been made in advancing the public's knowledge and promotion of oral health, substantial disparities remain among children and adolescents of the United States (U.S.) Tooth decay – or the destruction of the hard, outer layer of teeth (tooth enamel) – is often caused by the oral intake of acidic foods or drinks that attack the tooth enamel and causes the tooth to lose minerals and degrade (Carlson & Veschucio 2006; Gussy, Waters, Walsh, & Kilpatrick, 2006). Tooth decay effects more than one-fourth of U.S. children aged 2–5 years and half of those aged 12–15 years (Dye, B. A., & Thornton-Evans, G., 2010; SC Department of Health and Environmental Control, 2011) . Additionally, nearly half of all children and two-thirds of adolescents aged 12–19 years from lower-income families have experienced tooth decay (Center for Chronic Disease Prevention and Health Promotion, 2010).

In recent years, research has revealed causal linkages between oral and systemic diseases (Azarpazhooh & Leake, 2006; Bandyopadhyay, Marlow, Fernandes, & Leite, 2010; Offenbacher et al., 2006; Paula et al., 2012). Poor oral health is associated with higher risk for cardiovascular disease, as well as increased risks for people living with diabetes and/or respiratory disease, adverse pregnancy outcomes, and oral cancer (Azarpazhooh & Leake, 2006; Genco, Glurich, Haraszthy, Zambon, & DeNardin, 2000; Guha et al., 2007; Offenbacher et al., 1996). Oral health is both a foundation and indicator of systemic health, and understanding prevention opportunities will help reduce oral health disparities.

The ability to maintain comprehensive oral health depends on many factors, including oral health literacy, income, dental insurance, transportation, parental socioeconomic status, and access to preventive and professional dental care services (Carlson and Veschucio, 2006; Gussy, Waters, Walsh, & Kilpatrick, 2006; Liu, Probst, Martin, Wang, & Salinas, 2007; Mouradian, Huebner, Ramos-Gomez, & Slavkin, 2001). Promoting preventive dental health through other actors in the healthcare system, such as through medical provider settings, will benefit both the patient and provider by increasing the adolescents' overall health and well-being (Paula et al., 2012; Slavkin, 2001). Medical-dental collaboration is a developing framework that supports the interprofessional collaboration between dental and medical providers who are working together to serve their patients for better oral health outcomes (U.S. Department Health Resources and Services Administration, 2014). The inclusion of oral health messages during primary care visits provides clinicians with an opportunity to promote positive

oral health behaviors for adolescent patients. To date, however, little is known about the acceptability and feasibility of the medical-dental integration model.

This research was a part of a larger five-year, federal quality demonstration project in South Carolina (SC) that was funded by the Center for Medicaid and Medicare Services (CMS). The purpose of the larger study was to establish and improve the quality of children's healthcare through measures of quality, promote health information technology, and examine provider-based models through the implementation of 24 core quality measures. SC's overall goals for the demonstration project included: Quality, Technology, Innovation, and Pediatrics (QTIP) and is referred to as the QTIP demonstration project (SC Department of Health and Human Services, 2014).

In this study, we conducted a process evaluation of the QTIP demonstration project to examine how and the extent to which primary care pediatric practices integrated preventive dental health. The study was guided by two specific research questions: 1) To what extent did primary care pediatric practices engage with materials and trainings of the QTIP demonstration project? 2) How did primary care pediatric practices integrate preventive dental health in their medical settings?

STUDY DESIGN AND METHODS

Participants and Setting

A total of 18 pediatric practices provided documents for this study. Practices ranged across 13 counties within the state of South Carolina. The practices were a heterogeneous mix that varied in size, location, occupational staff and stages of integration. As a part of the larger study, practices were chosen to participant based on

the completion of an application, having a minimum of 26% Medicaid patients, pledging to 5 years of commitment, and overall willingness to be participants of the project.

Data Sources

All documents for the directed content analysis were provided by the QTIP project director, who served as the primary contact for the duration of the project and provided access to using data for this study. Documents included: Original Grant Notification (the initial grant letter received by the QTIP project director), Original Grant Application (initial application provided for the demonstration project), Preventive dental health recommendations, PowerPoint trainings/presentations (related to oral health utilized throughout the duration of the project), Oral Health Materials/Educational Curriculum, Plan-Do-Study-Act cycle reports (PDSA cycles were goal sheets for preventive dental health integration completed by QTIP practices), the QTIP website, Technical Assistance Site Visit logs and calendar (site visit sign-in sheets, dates listed and meeting agendas) Learning collaborative agendas and attendance logs (Learning collaboratives were training, network and learning sessions for QTIP practices) and Annual Progress Reports (reports provided each year to track progression of implementation for project objectives). Table 4.1 provides a detailed accounting of all data sources used in this study. The data collected was from mainly self-reported documents from each practice.

Analysis

This study used qualitative directed content analysis approach. This approach involved the use of theory and relevant literature as initial guidance for the development of codes from the data (Hsieh & Shannon, 2005; Weber, 1990). A process evaluation

was conducted to identify the extent to which practices engaged with QTIP training and materials and how practices integrated oral health within their medical settings through aspects of reach, dose received, dose delivered, and fidelity of the QTIP demonstration program. More specifically, to evaluate pediatric practices' engagement with QTIP training and materials we assessed dose delivered by coding Learning collaborative meeting agendas and presentations, technical assistance logs and oral health educational training materials; we assessed reach by coding attendance logs to identify whether all practices were represented and participated in each Learning collaborative directed towards oral health; and fidelity was assessed by coding the original grant application and study objectives to identify that the project was delivered as intended. To evaluate the extent to which practices integrated preventive dental health as a result of the QTIP demonstration project we assessed dose received and response by coding PDSA cycle reports, annual progress reports and technical assistance logs.

We used rigorous and interpretive techniques to identify the process by which primary care pediatric practices integrated preventive dental health based on the QTIP demonstration project. The procedures are based on a directed approach to content analysis, a strategy that focuses on existing theory and deductive category application to extend and support current theoretical frameworks (Hsieh & Shannon, 2005; Mayring, 2000; Potter & Levine-Donnerstein, 1999). First, a preliminary code schematic was developed using existing theoretical principles of process evaluation and research literature related to interprofessional collaboration in medical settings to identify key concepts for initial coding categories. Operational definitions were developed for each coding category using relevant theoretical principles and research literature (Hsieh &

Shannon, 2005; Potter & Levine-Donnerstein, 1999). Matrices were then developed, using spreadsheets – Microsoft excel, to examine data sources, recognize similarities and differences between pediatric practices' data sources, recurrence of codes, identify categorical patterns, and organize key concepts derived from the data sources. Data was further analyzed to establish any new categories or subcategories for existing codes. As a part of the analyses, memoing (written reflective notes about what the researcher was learning from the data to assist in thematic conceptualization), peer debriefing (consistent meetings and feedback with QTIP project director on specific inquiries about data sources retrieved), and audit trails (examination of major themes and accuracy of operational definitions of categories with QTIP project director) were conducted in order to ensure trustworthiness of the data (Creswell, 2012; Hsieh & Shannon, 2005; Patton, 2002).

RESULTS

In our evaluation we identified the extent to which pediatric primary care practices' engaged with preventive dental health training and materials and how practices integrated preventive dental health within their primary care settings. A summary table of the results has been provided for a concise view of preventive dental health integration for QTIP practices (Table 4.1b Results Summary).

Extent to which pediatric primary care practices' engaged with preventive dental health training and materials

The extent to which pediatric primary care practices' engaged with preventive dental health training and materials are evidence by: their high engagement as QTIP participants through attendance at Learning collaboratives, developed partnerships at

Learning collaboratives, FV certifications, and documented requests for technical assistance.

The Learning collaborative

As described by QTIP, "The Learning collaborative is the vehicle through which all activities of the South Carolina CHIPRA grant are integrated" (SC Deparment of Health and Human Services, 2014). The Learning collaborative structure is linked to the SC American Academy of Pediatrics (SCAAP) Annual Community Access to Child Health (CATCH) meeting, during which an extra day meeting session is included for QTIP pediatric practices. There were a total of nine Learning collaboratives, one of which was held in July 2011 and primarily focused on oral health.

In the review of the Learning collaborative agendas, oral health materials/educational content, and Learning collaborative presentations, analysis showed that the Learning collaboratives were conducted as planned in relation to preventive dental health. As a result of the Learning collaborative, QTIP pediatric practices were given an opportunity to connect and collaborate through peer engagement, learn from presentation experts about preventive dental health integration, understand practical implication of improved oral health, received training and oral health educational materials, and understand the significance of gathering and using collected data. Additionally, partnerships were established with SC Department of Health and Human Services (SCDHHS) on the development of a fluoride varnishing certification training, the SC Department of Health and Environmental Control (SCDHEC) and the introduction of the oral health tool kits, and with the Connecting Smiles Care Coordination Team as part of the DentaQuest 2014 Grant and Health Resources and

Services Administration (HRSA) Workforce Grant to define Preventive Oral Health Training for Medical Providers.

Learning collaborative attendance

QTIP pediatric practices were also required to attend the Learning collaborative meetings, having three team members representing each of the 18 practices. Based on the Learning collaborative attendance logs, each practice had at least three team members present at the July 2011 Learning collaborative meetings that focused on preventive dental health (n=68). This result was expected because any absences from the Learning collaborative would result in forfeiting that quarter's incentive stipend to QTIP pediatric practices.

Fluoride varnish certification

QTIP participants were trained and certified on the application of FV, with a total of 369 certified staff to provide FV in all 18 practices. The American Board of Pediatrics provided Maintenance of Certification credits for oral health via completion of the training. QTIP pediatric practices working as a collective group was an appropriate approach towards addressing hidden collaborative opportunities within the healthcare delivery system for oral health integration in primary care medical settings.

Technical assistance

Included within the 2011-2015 annual progress reports, QTIP Technical assistance site visit attendance log, QTIP Technical Assistance site visit agenda and QTIP Learning collaborative presentations, the QTIP Technical assistance site visits were shown as completed as required for each QTIP practice, according to project objective expectations. Generic reports were provided for technical assistant site visits for

pediatric practices, such as the calendar of technical assistance site visits and agendas for planned topics to be discussed, but specific information was not provided as to whether this assistance was requested for preventive dental health or whether the requests were focused on another core quality measure.

How practices integrated preventive dental health into their primary care settings

Evidence of how QTIP practices integrated preventive dental health into their primary care settings was identified by: their increased billing rates for FV application, integration of preventive dental health recommendations, PDSA cycle reports showing their set goals and achievements for integrating preventive dental health, and peer reflections of successful preventive dental health integration.

Fluoride varnish billing

Of the 24 core quality measures the QTIP pediatric practices were required to report on, only one was related to oral health – specifically, the description of the project's measure for oral health was "the total number of Medicaid eligibles who received dental treatment services". The QTIP Annual Reports and Learning collaborative session presentations revealed that QTIP pediatric practices, as a group, reported a 357% increase in billing fluoride between 2010 (baseline) and 2015.

Integration of preventive dental health recommendations

Extending beyond the requirements of the demonstration project, QTIP pediatric practices also integrated oral health through four additional recommendations of preventive dental health, including: Referring patients to a dental home, FV application for children 12-36 months of age, discussion about fluoride in family's water drinking source during visit, and performing an oral health risk assessment for children 12-36

months of age. Given that these additional recommendations of preventive dental health extend beyond the original project objectives, (i.e. practices were only required to report on the total number of Medicaid eligible youths who received dental treatment services) these results indicate a unique motivation from QTIP pediatric practices to enhance their opportunity to positively impact oral health in their medical settings.

PDSA reports

PDSA is a useful tool to document a test for a change (Institute for Healthcare Improvement, 2003). In this study, PDSAs were incorporated as a quality improvement strategy to regularly assess the progress made for specific preventive dental health integration goals in QTIP pediatric practices. The QTIP pediatric practices were required to submit and document a minimum of four PDSA cycles per quarter, but they were not exclusive to submissions only on oral health and could include any one of the quality measure indicators covered over a quarter cycle. A total of 174 PDSA cycles were reviewed in order to better understand how QTIP pediatric practices engaged with quality improvement training, preventive dental health recommendations and materials for oral health integration into their primary care practices. PDSAs reviewed were reported from February 2011 – January 2015, and all 18 QTIP practices submitted at least one PDSA cycle. Our findings indicate that many QTIP pediatric practice PDSAs focused on some key preventive dental health integration goals, including: Providing a dental referral list to patients, determining the cost effectiveness of FV application, and providing dental education and incentives for parents/guardians (Table 4.1c Summary of PDSA Reports). Furthermore, annual Progress Reports and forum presentations also outlined how oral health integration occurred as planned, according to the demonstration project objectives.

Since July 2011, as a group, QTIP pediatric practices have integrated preventive dental health by providing fluoride varnish application for patients, identifying a dental home for their patients, discussing the importance of appropriate fluoride levels in family's water source, and providing oral health screenings for patients.

Peer reflections

A peer-to-peer quality improvement network was developed for the benefit of the QTIP pediatric practices engagement and was supervised by providers of pediatric care in the state. Our review of the QTIP Annual Reports and Learning collaborative session agendas suggested that in fulfillment of this requirement, QTIP successfully established and arranged Learning collaborative meetings that provided opportunities for peer sharing, networking, partnership on activities, discussion of best practices, and conversations about things that did not work well in relation to oral health integration. More specifically, there were peer reflection presentations provided by QTIP pediatric practices (n=3) that focused on their oral health successes and pitfalls. Major topics discussed in these presentations were: where to purchase fluoride varnish supplies, understanding private insurer payment vs. Medicaid payment for fluoride varnish application, low reimbursement rates in South Carolina, addressing challenges with referring a patient to a dental home, benefit of formalized staff training for fluoride varnish and preventive dental health, using bulletin boards in their practice to educate parents and families about oral health, and how to include oral health in well-child visit with other topics that need to be addressed and limited time.

DISCUSSION

Overall, our results specifically demonstrate an achievable process of preventive

dental health integration within primary care pediatric provider settings. As a result of the QTIP demonstration project, we were able to understand the extent to which QTIP practices engaged with preventive dental health training and materials and how preventive dental health integration occurred. QTIP pediatric practices received sustainable and practical application strategies for preventive dental health integration in their existing primary care settings. We also recognized the approach and practical response to real world implementation for integrating oral health within medical settings involves a process that involves collaborative learning, interprofessional peer networking, educational training, setting goals, and reimbursement mechanisms. This approach is similar to key conclusions in the 2011 HRSA report, *Advancing Oral Health in America*, which pinpoints that educational for non-dental healthcare professionals, interprofessional team-based care training, and financing systems and incentives may assist oral healthcare delivery.

QTIP pediatric practices were expected to be committed, have an overall willingness to participate and adhere to all requirements as a participant in the demonstration project. QTIP practices were also incentivized for their adherence to these expectations (SCDHHS, 2014). We identified that these expectations and incentives possibly encouraged a motivation for their consistent engagement as participants within the study, as evidenced through QTIP participants' regular attendance to Learning collaboratives. We also observed that certain expectations of QTIP participants may not have been as feasible and may require improvement for application in future studies. For instance, the Technical assistance site visit logs were not well documented within this study, perhaps enhancing the structure of reporting and emphasizing the value of

collecting this type of data would warrant an increase in reporting, but there is limited information to as why this evidence was not completely captured. We found that the Technical Assistance site visit logs were not as efficiently documented in comparison to other data provided from the pediatric practices. Introducing a better system to retain and retrieve information would be something to consider for future projects, in order to maintain accuracy in generating progress reports, understanding how certain technical assistance for preventive dental health was received and how objectives pertaining to those requests were met or not met.

In terms of study limitations, it is important to keep in mind that oral health was not the primary focus of the larger study. In addition, each QTIP practice received an incentive for their participation in the project. Therefore, we cannot say with confidence that any changes with regard to preventive dental health integration were solely the result of engagement with QTIP training and materials. The study also relied, in part, on self-reported data used within the PDSA reports from pediatric practices. When self-reported data is used, the possibility of pediatric practices providing incomplete or inaccurate information or providing socially-desirable responses is increased.

IMPLICATIONS FOR PRACTICE

The most at-risk children and adolescents for poor oral health outcomes are those who receive Medicaid benefits. More specifically, the benefit for children and adolescents is the Early and Periodic Screening, Diagnostic and Treatment (EPSDT), a benefit that helps children and adolescents to receive preventive health screenings, treatments, and medically relevant services from their medical and dental providers to address their health conditions (CMS, 2014). Most children and adolescents receiving

the Medicaid benefit will most likely receive EPSDT annually, as recommended. Because of their placement in the healthcare delivery system, medical providers who conduct well-child visits can increase opportunities for the Medicaid child and adolescent population to receive preventive oral health messages, allowing for a chance to improve oral health statuses. Promoting medical-dental collaboration as a systems-level approach in SC has the potential to reduce the prevalence of oral health diseases and related illnesses. In this evaluation, our key findings suggests that pediatric practices engaged with trainings and materials and integrated preventive dental health in their practices, demonstrating evidence for the ability of medical-dental collaboration to be a useful model for integrating preventive dental health. Future studies that focus on interprofessional collaboration between actors in the healthcare system for oral health should include a clear process and goals for preventive dental health integration, education and training, and reimbursement for preventive oral health services. This finding is consistent with 2014 HRSA report, *Integration of Oral Health and Primary Care Practice*, which provided a detailed report and specific recommendations to serve as a framework for a competency-based, interprofessional practice model to integrate oral health into primary care settings. By understanding levels of engagement and how integration of oral health can work in medical settings we can pinpoint specific areas in the healthcare delivery system where preventive dental health integration would most likely be effective for the patient and the provider, for example: providing a dental referral list to patients and parents, securing a dental home for patients, and providing dental education and incentives for parents/guardians, just to name a few. Compared to existing literature, this finding aligns with the recommendation to enable patients to

obtain oral health services from the range of health care professionals that they may encounter more routinely, more specifically primary care providers (HRSA, 2011). Informing medical systems with practice-based concepts and processes that make preventive dental health integration possible, such as presented within this study, we can successfully have an opportunity to enhance the health care delivery system in ways which are otherwise, underutilized.

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Table 4.1 Data Sources

Data Sources
• QTIP Demonstration Project • Original grant application and objectives document • CORE Demonstration project measures document • QTIP Expectations for participating Practices document • QTIP website (https://msp.scdhhs.gov/qtip) • QTIP Training and Resources • 2 out of 9 Learning collaborative agendas mentioned preventive dental health • Learning collaborative Meeting oral health presentations (*n*=7) • Learning collaborative Meeting attendance logs/sign-in sheets (*n*=2) • CATCH Brochure and Meeting Objectives document • Oral Health Educational training materials (*n*=5) • QTIP Implementation of preventive dental health integration • QTIP Documented PDSAs (*n*= 174) • QTIP Technical Assistance Site Visit Calendar • QTIP Technical Assistance Site Visit attendance logs/sign-in sheets (*n*=36) • QTIP Annual progress reports (2011-2015) (*n*=5) • Learning collaborative peer reflection oral health presentations (*n*=3)

Table 4.2 Summary of Results

Research Question	**Outcome**
• **To what extent did primary care pediatric practices engage with materials and trainings of the QTIP demonstration project?**	• 369 pediatric office staff in all 18 QTIP practices trained to administer fluoride varnish application • Learning collaborative attendance logs showed that each practice had three or more team members present at the July 2011 Learning collaborative meeting that focused on preventive dental health (*n*=68) •Technical assistance site visit logs were incomplete and were not available for analysis but were referred to in the Annual progress report
• **How did primary care pediatric practices integrate preventive dental health in their medical settings?**	•Billing for fluoride varnish has increased by357% from July 2011 (baseline) to January 2015 for QTIP pediatric primary care practices •174 PDSA reports submitted by all 18 QTIP pediatric practices to show how certain goals for preventive dental health integration were achieved •Pitfalls and successes for preventive dental health integration were provided through peer reflection presentations by 3 QTIP pediatric primary care practices

Table 4.3 Summary of PDSA Reports

Key Preventive Dental Health Integration Goals
• Implement oral health education during well-child visits
• Conduct oral health screenings for patients
• Include prompts within electronic medical records to act as reminders for physicians and patient provider staff
• Apply FV
• Provide dental referral list to patients
• Determine the cost effectiveness of FV application
• Provide dental education for parents/guardians
• Provide incentives for parents/guardians, such as: toothbrushes, floss, and toothpaste
• Assess fluoride in drinking water

4.2 MANUSCRIPT 2

By Word of Mouth: A Qualitative Approach to Understanding the Integration or Preventive Dental Health in Primary Care Settings[2]

ABSTRACT

Objectives: Extensive strides have been made in advancing the knowledge and oral health promotion in the United States, but substantial racial, ethnic and socioeconomic disparities remain in oral health statuses amongst children and adolescents. Children and adolescents living in the U.S. are placed at a high risk for poor health outcomes, which may extend into adulthood. More specifically, 20% of individuals 12–19 years of age currently have untreated decay. As a potential strategy to address oral health disparities amongst children and adolescents, we aimed to explore medical-dental collaboration as a model for encouraging preventive dental health in pediatric primary care settings.

Study Design: Qualitative interviews were conducted with 22 individuals of the participating primary care pediatric practices (n=18) in the Quality through Technology & Innovation in Pediatrics (QTIP) project to explore the perspectives of the QTIP

[2] Nelson JD, Spencer SM, Blake CE, Moore JB and Martin AB. To be submitted to *Journal of Pediatrics*

participants about their experiences with preventive dental health integration in their primary care settings. We used a semi-structured interview guide to capture participant experiences integrating preventive dental health and focused on the following: Successful experiences with oral health, challenges with preventive dental health integration in their practices based on quality improvement recommendations, practice-based recommendations for preventive dental health integration in a pediatric primary care setting.

Results: As a result of pediatric practices' participation in the QTIP project, preventive dental health integration was implemented across all QTIP practices. Experiences described by QTIP participants were represented by 7 themes, including: 1) communication between staff members; 2) role delineation; 3) preventive dental health education and training; 4) sustaining improvement; 5) willingness to engage in QTIP recommendations for preventive dental health; 6) parent behaviors and 7) practice-based preventive dental health integration recommendations.

Conclusion: In this study we identified key perceptions of what works well, challenges, and best practices about preventive dental health integration in medical settings that may affect the oral health outcomes of children and adolescents living in SC. Promoting this model of medical-dental collaboration in medical settings has the potential to reduce the prevalence of oral health diseases and related health illnesses linked to poor oral health.

Keywords: Medical-dental collaboration, organizational structure, preventive dental health, qualitative methodology, ecological perspective, quality improvement

INTRODUCTION

According to the Surgeon General's Report,[1] low-income children are more likely to experience the consequences of oral health complications, most commonly dental

caries. Cavities has also been characterized as one of the single most important chronic diseases that continues to disproportionally burden our more vulnerable populations, such as low-income and underinsured populations, and children with special needs[1]. More specifically, nearly half of all children and two-thirds of adolescents aged 12–19 years from lower-income families have experienced tooth decay[2]. Addressing dental health is an important step in closing the gap in oral health disparities amongst children and adolescents. It is likely that increasing the knowledge about the limited access to dental care and awareness of dental health as a catalyst for overall health complications, such as: cardiovascular disease, adverse pregnancy outcomes, and oral cancer[3-6] will encourage responsibility amongst not only dentists within the healthcare system, but within the larger systems of care that include medical and dental health professionals.

Substantive oral healthcare is vital for prevention of unwanted diseases and complications, such as: dental caries, tooth loss, mouth and facial pain but oftentimes[7] oral health is overlooked as an integral component of general health, which perpetuates the devastating effects of the silent epidemic of oral diseases. Improving provider awareness and access to the delivery of preventive dental healthcare may lead to opportunities for positive changes in oral health statuses and overall health amongst children and adolescents[8-9].

This research was a part of a larger five-year project in South Carolina (SC). SC was funded for a federal quality demonstration project by the Center for Medicaid and Medicare Services (CMS). The purpose of the larger study was to improve the quality of children's healthcare through measures of quality, promote the use of health information technology and patient centered medical home expansion, and conduct an evaluation of

provider-based models through the implementation of twenty-four core quality measures. SC's demonstration project focused on, Quality, Technology, Innovation and Pediatrics (QTIP) and is referred to as the QTIP demonstration project[10].

In this study we attempted to demonstrate the feasibility of integrating preventive dental health in pediatric primary care practices by exploring QTIP participant perspectives about implementation of preventive dental health integration in their pediatric primary care settings. The study was guided by three research questions, including: 1) What are their perceptions about what works well for preventive dental health integration in their practice? 2) What are the challenges to preventive dental health integration in their practice? 3) What are the recommendations that pediatric providers and primary care health professionals provide for preventive dental health integration in medical settings?

METHODS

Participants and Setting

In-person and phone interviews (n=22) were conducted with QTIP participants to understand their perceptions regarding preventive dental health integration. QTIP participants included: primary care pediatric providers and pediatric primary care professionals, including: office managers, medical directors, clinical staff and lead practitioners of the participating primary care pediatric practices (n=18). In this study, criterion sampling was used for the recruitment of participants for qualitative interviews[11-12]. Participants were selected for this study based on the following criteria: all participants must be actively involved in the QTIP demonstration project (i.e. is a QTIP participant) and participants must also speak English.

Data Collection

A semi-structured interview guide was developed with open-ended questions to capture the responses of the participants interviewed. The interview guide was developed based on the research study goals, existing literature regarding interprofessional collaboration to improve oral health statuses in children and adolescents, ecological theory, a public health framework, that focuses on varying levels of influence in society that can shape health outcomes[13-18] and QTIP quality improvement recommendations for preventive dental health[10]. QTIP recommendations for preventive dental health integration, included: Referring patients to a dental home, FV application for children 12-36 months of age, discussion about fluoride in family's water drinking source during visit, and performing an oral health risk assessment for children 12-36 months of age[10]. The interview guide was reviewed and piloted through peer interviews (n=5). Interviews were conducted with participants face-to-face or on the phone based on participant preference. The face-to-face interviews were mostly completed in pediatric practice offices and a few at desired meeting sites of the participant. Each interview was audio-recorded and took approximately 30-60 minutes. Participants were initially contacted by email and/or phone to participate in the study. Informed consent was obtained from participant prior to the interviews. Audio recordings were transcribed verbatim and analyzed using a grounded theory approach and constant comparative method[11&19-21] (Table 4.2a Sample of Interview Guide for QTIP participants).

Analysis

We used a grounded theory approach to data analysis that involved open, axial, and selective coding[11&19-21]. The procedures are based on the constant comparative method in continuous data analysis[11&19-21]. We first developed a preliminary code book

that best represented participants reported experiences. Three experienced qualitative researchers independently coded 3 interviews using the preliminary code book and developed additional codes based on research study goals, emergent themes and a priori codes. We then compared 10% of the coded interviews by comparing coding page-by-page. Any differences in application of existing codes or identification of new codes were discussed by the research team until a consensus was reached for final code book modifications. Next, one researcher used the final code book to code all interviews and selective coding was conducted to group similar themes, but allowed for additional themes to emerge. Lastly, matrices were developed to explore responses across participants and compare repetition of themes within an interview and across interviews, patterns of responses across participants, and differences in responses. All data collected was analyzed using MAXQDAplus®, which is a qualitative data analysis software[22]. To ensure the quality of the data used within this study the researcher conducted member checks (which consisted of reviewing participant's responses to the interview questions and discussing themes from the study to gain their perspective on the researcher's interpretation of the data), peer debriefing (Consistent feedback and engagement with the QTIP project director, qualitative methods researchers (*n*=3), and data triangulation (this study used more than a single data collection method to enhance quality of data, including qualitative interviews and process evaluation data to examine the concepts of preventive dental health integration in primary care settings) [11-12&23].

Characteristics of strong, moderate, and weak classifications for preventive dental health integration were derived based on the perspectives of the QTIP participants. The classification was determined by examination of participant experiences and their

perceived implementation of quality improvement strategies for preventive dental health in their practice based on their participation in the QTIP demonstration project. Specifically, when QTIP participants expressed solely positive experiences and motivated efforts to implement all QTIP preventive dental health recommendations, integration was characterized as strong. In contrast, if QTIP participants described only challenges and barriers and reported that the implementation of preventive dental health recommendations were lacking, integration was characterized as weak. Preventive dental health integration was characterized as moderate when QTIP participants described both positive experiences and how they addressed challenges through quality improvement strategies.

RESULTS

The experiences described by QTIP participants were represented by seven themes that were reflective of research questions, which involved key perceptions of what works well, challenges, and best practices about preventive dental health integration in medical settings. The seven themes included: 1) communication between staff members; 2) role delineation; 3) preventive dental health education and training; 4) sustaining improvement; 5) willingness to engage in QTIP recommendations for preventive dental health; 6) parent behaviors and 7) practice-based preventive dental health integration recommendations. Each practice was also categorized as having a strong, moderate, or weak preventive dental health implementation based on examination of participant experiences and their perceived implementation of quality improvement strategies for preventive dental health in their practice based on their participation in the QTIP demonstration project.

What Works Well

QTIP participants frequently talked about some of their successes regarding what worked well in their medical settings for integrating preventive dental health. They described communication between staff, understanding roles for specific individuals within their practice and availability for training and education for the integration of preventive dental health within their practice as key strategies that worked well.

Communication between staff members

The existing communication between practice staff members seemed to influence the efficiency and consistency of preventive dental health integration (*n*=21). Participants described how varying types of communication, including monthly meetings, daily huddles, mass emails, and electronic prompt reminders within the practice affected implementation of preventive dental health. Some QTIP participants stated,

> *We have, like, a daily huddle, and for a while we had everybody in the office, focusing on doing dental varnish at 12 months* (Interview #19).

> *We have a clinical care committee meeting once a month. Each of our offices has a physician and a clinical person on the clinical care committee, and we meet – and then the rest of us call in and meet by conference call with everybody. So if something changes with what we're doing for oral health, I will bring that to clinical care, and everyone will discuss it there, and then the clinical care folks bring it to the rest of their offices and disseminate it* (Interview #10).

Role delineation

All QTIP participants (*n*=22) described the role, duties, and responsibilities of each individual health care professional involved with integrating preventive dental health in their pediatric practice, indicating that all duties for preventive dental health integration is share among the pediatric primary care team and not solely a responsibility of the physician. Specifically, they stated how they perceived each role was essential to

the delivery of the QTIP quality improvement recommendations for oral health. As one QTIP participant stated,

> *I am a pediatrician and the nurses on my staff, do the first two part of this well-check form, and then I do the exam (oral health risk assessment) and see if there are any staining, or any cavities, if there's some type of abnormality with the teeth – My staff does a lot of educating before I get into the room, so I can just deal with more concerns, the exam, and what needs to be done at that well visit. They already set up the actually the mood for oral health* (Interview #12).

> *I am EMR technical support –you know, we're a residency practice, a teaching facility. So, we inputted, patient information in the EMR that let them know with one of our counties had fluoride and which didn't, so whatever water system they were on. – I am more administrative on that side of the physician practice and I do the EMR. So, I'm more of the tech junkie than the clinical–so data collection and stuff like that and training for residents on the EMR input. That's why I'm on the QTIP team.* (Interview #3).

Preventive dental health education and training

QTIP participants frequently mentioned their preventive dental health education and training that was a part of the QTIP Learning collaborative (*n*=22), the vehicle through which all activities of the demonstration grant were integrated. Education about oral health prevention, opportunities to network and learn from other pediatric practices on preventive dental health, fluoride varnish application, fluoridated water sources, oral health screenings, Plan-Do-Study-Act (PDSA) quality improvement cycles for carrying out oral health strategies, EMR technology, patient education and materials, dental referral mechanisms, medical-dental collaboration, and fluoride varnish reimbursement rates were major topics revealed in interviews. A few QTIP participants stated,

> *So learning good data. And then learning from what other practices had done that had failed, and learning what had been good uh, has been very helpful.* (Interview #6).

> *At QTIP we have story boards. We see what progress people are making. Um, we share information. We discuss billing problems that you know reimbursement; why you can't get reimbursed for this. I think it helps us as a practice, with our quality to the patient* (Interview #13).

> *I think that's been very helpful but also just different handouts, different techniques, and different ways to present, dental varnish or just dental hygiene in general to families. It's been a very enlightening process.– just going – having experts come in to talk to us about the oral health toolkit, was really helpful for our practice* (Interview #14).

Challenges for Integration

Challenges for preventive dental health integration was not absent from perspectives of QTIP participants. Major challenges for participants to implement QTIP quality improvement recommendations were focused mainly on sustaining implemented strategies for preventive dental health, eagerness to engage within preventive dental health integration, and individual parent and child behaviors that influence optimal oral health outcomes.

Sustaining improvement

QTIP participants (*n*=16) described a significant challenge in the continuation of preventive dental health integration. Many of their explanations were focused on limited resources, funding for supplies, turnover in staff, dental provider cooperation with serving children three or younger and intentional communication amongst staff about consistent messaging used for oral health. QTIP participants stated,

> *So, I think in our clinic, our particular challenge is gonna be making sure that we are continually educating everybody – and that is making sure that all our new providers are educated and trained on fluoride varnish to make sure that they understand the importance of it all* (Interview #11).

> *But you know that is also another issue. We don't have a lot of dentists who take kids that are, one or younger, or three or younger* (Interview #16).

Willingness to engage in QTIP recommendations for preventive dental health

Many QTIP participants (*n*=15) discussed their complications with practice buy-in; that is, providers and/or pediatric practice staff agreeing to implement the QTIP quality improvement recommendations for their practice, namely fluoride varnish application. Explanations for resistance to integration were limited time during patient visits, questionable opportunity for reimbursement, and lack of enthusiasm for integration due to change. QTIP participants stated,

> *Um, physician pushback as well. You know, with being such a large practice, we have some physicians that are, kinda stuck in their old ways, –Yeah, they just don't wanna get this involved. So physician participation has been a major issue* (Interview #20).

> *We have some seasoned physicians out there and, you know, a dental home is place for dental care, not pediatricians. So if there's not any – kind of a reward at the end of the visit for the physician, the physician wasn't really gonna put that on the priority list you know, they're looking at other body systems* (Interview #15).

Parent behaviors

QTIP participants were not without challenges related to individual parent behaviors that ultimately influenced the oral health outcomes of their pediatric patients. Major explanations (*n*=9) included socioeconomic status barriers, too many handouts and too much information during the visit, language differences, health literacy challenges, insurance, transportation, at-home oral health practices, and the overlooked importance of oral health. QTIP participants stated,

> *And your other option here is to drive 50 miles to Anderson or Greenville to go to a dental clinic. So there's some significant barriers with access*. (Interview #18).

> *And what we found was there wasn't, you know, for an area our size, there really wasn't a whole lot and not in some of the smaller areas. So, some of*

> *them, you know, unless the parents can drive or find transportation, this is the only preventative dental they get* (Interview #3).

Most of the QTIP practices were classified as having strong characteristics of preventive dental health integration within their primary care settings (*n*=19), however a few QTIP practices (*n*=3) were classified as having moderate/weak characteristics of preventive dental health integration within their primary care settings. The differences between the strong and moderate/weak classification were based on challenges to preventive dental health integration. QTIP participants classified as moderate/weak had two major hindrances to preventive dental health integration, including staff communication and pediatric provider buy-in. QTIP participants described staff communication as a barrier because of no standard messaging about oral health across the entire practice, including front-office staff, clinical, and billing; apathy in reading electronic notifications about practice initiatives; and dissemination of training new staff for preventive dental health integration. QTIP participants described pediatric provider-buy in as a challenge for preventive dental health integration because providers mentioned there was not enough time to include fluoride varnish application into the well-child visit; providers were resistant to change due to additional responsibility to take on preventive dental health; and did not fully understand benefits of preventive dental health integration in medical settings.

Practice-based preventive dental health integration recommendations

As key actors within the healthcare system, QTIP participants provided feedback on the best practices for preventive dental health integration for pediatric primary care settings. Across all participants interviewed within the study, QTIP participants revealed

12 key recommendations based on their experiences within the quality improvement demonstration project (Table 4.2b 12 Key Preventive Dental Health Recommendations in Pediatric Primary Care Settings, as described by QTIP Participants). For example some QTIP participants mentioned,

> *Having a good dental referral, what do you call it? Like a directory, you know, dentist who will take kids—a lot of places, they won't take the kids if they're not four or five. Then knowing who will take kids who are younger is helpful. We do have a list in our office of dentists and what insurance they'll take and the ages that they'll take. So having a good referral-base, for dentist is really helpful. Having a good relationship with your dentist is really helpful —I think that's the major thing* (Interview #4).

> *I think that just educating on the importance. People don't really think about how your teeth can affect your speech, your self-esteem, you know, your nutrition. There's so many things that it can effect* (Interview #8).

> *I think most pediatricians, you know, include that [oral health] as part of their, or they should, as part of their well child visit. It's certainly recommended, you know, by the AAP – but the dental varnish I think is great – the dental varnish would be my best recommendation* (Interview #9).

DISCUSSION

In this study, participant perspectives provided a platform to gain a better understanding of feasibility for future preventive oral health-focused integration strategies for primary care settings. All participants in this study also mentioned that oral health was important to address during a visit and valuable to the overall health and well-being of a child. This acknowledgement of oral health being valued by pediatric primary care professionals is a critical step in advancing the organizational culture of primary care settings because this introduces a potential commitment to healthcare delivery for preventive dental health in medical settings. This concept is consistent with literature that describes that the effectiveness of oral health care delivery can be influenced by the

organizational culture or environment of the facility[24].

To date, no study to our knowledge has assessed the perspectives of pediatric providers to recognize potential opportunities for preventive dental health to benefit children and adolescents. As such, the QTIP demonstration project provided a unique opportunity to explore key perceptions of what works well, barriers, and best practices about preventive dental health integration that can enhance preventive oral healthcare delivery systems. Promoting medical-dental collaboration as a systems-level approach has the potential to affect the oral health outcomes of children and adolescents living in SC, which is consistent with literature that states that oral health should be targeted through not only the dental healthcare systems, but through medical health systems of care. Because systems of healthcare can be particularly difficult for the underinsured and non-insured to navigate; all too often, inadequate income-based health services (e.g., free-clinics, and sliding fee scale mechanisms) can lead to detrimental oral health outcomes for children and adolescents; therefore it is critical that opportunities for systems to be enhanced are not overlooked or dismissed[25-28]. In this study, we may have been observing that QTIP participants were early adopters to preventive dental health integration, considering their overall willingness as a group to include oral health within their medical setting, which takes time, consistency and strategic planning. In order to continue the expansion of oral health integration in pediatric practices, a concentration on the benefits of preventive dental health integration and recommended best practices perceived by previous implementers in this study will also be essential to future adoption of preventive dental health integration strategies in more other medical settings in SC. These findings are comparable to literature with foci on oral health and the patient-

centered health home, where health centers and/or medical practices embrace innovative quality improvement strategies, value of dental health integration, best practice recommendations and display an in-depth willingness to enhance efforts to incorporate oral health into their health services with a goal of improving health outcomes of the populations they serve[27&29-30].

The current study was not without limitations. First, oral health was not the primary focus of the parent grant in which I evaluated in this study, but the necessity to capture this information through an investigation has the potential to support future initiatives for medical-dental collaboration in SC. The study also may not have captured other pediatric primary care practices, not participating in the QTIP demonstration project that are incorporating preventive dental health within their practices. Any changes with preventive dental health integration in each practice may not be solely dependent on their participation within the QTIP demonstration project, considering that each QTIP practice received an incentive for participation. Findings reflect the personal experiences reported by QTIP participants specific to their practice. Self-reported data may reflect socially desirable responses and personal biases. But, the valuable experiences revealed through their perspectives are instrumental for future research and implementation of specific strategies that were successful within the study. Finally, 18 practices were invited to participate in this study, but due to limited time, turnover in leadership for practices, and restricted schedules for providers, 15 out of 18 practices were represented within this study.

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Table 4.4 Sample of Interview Guide for QTIP Participants, 2011-2015

QTIP Participant Interview Questions	Question Aim
What is preventive dental health? What does it mean to you?	• Knowledge and experience related to their role in preventive dental health integration in their practice
In what ways did your practice integrate preventive dental health within your clinical setting for your patients?	• Perceived capacity to implement QTIP recommendations for preventive dental health integration
What are some of the challenges to integrating preventive dental health in primary care settings?	• Barriers for preventive dental health integration in pediatric primary care settings as described by the QTIP participant
Tell me how oral health can be best included within a well-child visit	• Opportunities and recommendations identified by QTIP participants to include oral health within a pediatric primary care setting

Table 4.5 12 Key Preventive Dental Health Recommendations in Pediatric Primary Care Settings, as described by QTIP Participants, 2011-2015

QTIP Participant Key Preventive Dental Health Recommendations	Recommendation Description
1. Educational Resources for Patients and Parents	Providing verbal education, oral health handouts, posters and media for patients and parents to learn more about preventive dental health
2. Referral Network	Good rapport with dentist in local area for successful

	dental referrals (specifically those who will see under age 5) and access to community resources
3. Practice Buy-in	Recognized benefits the practice and patients will receive which results in provider and staff enthusiasm and participation regarding preventive dental health integration
4. Provider Incentive	Specific focus on insurance reimbursement for FV application
5. Parent Incentive	Providing tangible incentives for patients and parents including: toothbrushes, stickers, list of local dentist, videos, and easy-to-read pamphlets
6. Preventive Dental Health Education and Training	Availability to workshop trainings and access to online modules for oral health prevention and dental health integration for pediatric practices
7. Preventive Dental Health Integration Structure	Identifying the roles and responsibilities of each provider and staff member as it relates to integrating preventive dental health, at which point during the well-visit will oral health be addressed and management of specific materials needed for preventive dental health integration
8. Paired Integration	Pairing preventive dental health integration with key topics during well-visits including: mouth care, obesity, immunizations, nutrition, and breastfeeding and making an intentional effort to follow-up at the next visit
9. Parent Buy-In	Patient interaction through education and prompting them on oral health expectations and milestones for their child, using demonstrations and providing incentives
10. Value of Preventive Dental Health Integration	Placing an emphasis on the importance of a dental home and it's relation to improved overall well-being outcomes for pediatric patients
11. Technology	Appropriate training for EMR and usage of preventive dental health prompts included within EMR, if applicable
12. Fluoride Varnish Supplies	Identification and purchase FV supplies needed

CHAPTER 5

DISCUSSION

5.1 SUMMARY OF FINDINGS

Specific Aim 1: To examine the process by which primary care pediatric practices integrated preventive dental health based on QTIP quality health improvement recommendations.

> **RQ1.** To what extent did primary care pediatric practices receive materials and trainings designed to provide QTIP quality health improvement recommendations for preventive dental health?

Our process evaluation examined the breadth of the trainings and materials designed to provide QTIP participants with quality health improvement recommendations for preventive dental health through their participation within the QTIP demonstration project. By assessing fidelity, reach, dose received and dose delivered (Linnan and Steckler, 2002; Saunders, Evans, & Joshi, 2005) we were able to develop a better understanding of the extent and how pediatric primary care practices engaged with materials and trainings for preventive dental health. Information obtained from the original project application suggested that the QTIP demonstration project's objective (i.e., to improve the quality of children's healthcare through measures of quality for oral health) was fulfilled in accordance with process evaluation domain, fidelity. After reviewing QTIP Annual Reports and Learning collaborative session agendas and

presentations, we determined that QTIP pediatric practices were trained during their bi-annual Learning collaborative meetings on some key preventive dental health recommendations, including: how to refer a patient to a dental home, the application of and certification in FV, how to discuss the importance of fluoride in the patient and family's water drinking source, and how to perform an oral health risk assessment. We also found through Annual progress reports that out of nine total Learning collaboratives, two had a focus on preventive dental health. Findings also suggested that in accordance with domain dose delivered, QTIP Learning collaborative meetings were conducted as planned and provided increased opportunities for QTIP participant network development, peer engagement and access to oral health educational training and materials. Our analysis revealed in accordance with domain reach, QTIP Attendance logs confirmed that, at least three participants from each QTIP pediatric practice attended the Learning collaborative that focused on oral health. These members included physicians, office managers, directors, nurses, and health information technology staff.

RQ2. How did primary care pediatric practices integrate preventive dental health as a result of receiving QTIP quality health improvement recommendations?

Part of the reason for conducting this project evaluation was to understand the process through which pediatric primary care practices integrated preventive dental health, findings heavily relied on the process evaluation domain dose received. After reviewing Annual progress reports, PDSA reports, and QTIP practice reflection presentations, our findings revealed that QTIP participants did, in fact, integrate preventive dental health within their pediatric primary care practices. Annual progress reports revealed that there was a 357% increase in billing fluoride between 2010

(baseline) and 2015 across all QTIP pediatric practices, showing the successful implementation of fluoride varnish for patients. PDSA reports showed that QTIP participants set specific goals for the integration of preventive dental health and successfully implemented their goals through planned activities within their practice (Institute for Healthcare Improvement, 2003). Many of the practices mentioned they provided dental goody bags, discussed water fluoridation source with patient and families, distributed handout sheets with fluoride varnish information, completed oral health risk assessments for their patients to identify potential areas of poor oral health, and offered a list of local dentists in the area to their patients and families. Similarly, QTIP reflection presentations (n=3) discussed specific take-away messages regarding preventive dental health integration. Key ideas that were discussed during peer reflections included: 1) pitfalls to incorporating oral health in their primary practice 2) Including preventive oral health education during nutritional intake conversations with parents of patients 3) Differences between private insurers vs. Medicaid insurers covering costs for fluoride varnish 4) Where to access supplies for fluoride varnish.

Specific Aim #2: To explore primary care pediatric provider perspectives on preventive dental health integration

RQ3. What are the primary care pediatric provider perspectives on oral health?

RQ4. What are the perceived roles of primary care pediatric providers in preventive dental health?

Twenty-two QTIP participants were interviewed about their perspectives on oral health. Participants mainly provided their definition of oral health as related to brushing teeth, visiting the dentist, and taking care of the mouth overall. The QTIP participants

varied in their professional role across their respective practices (i.e., nurse, technology staff, pediatric physician, director and certified medical assistant). Due to the wide variety of professions represented in the interviews, perspectives on their role delineation varied based on participants' specific duties within their practice. For instance, doctors and nurses were responsible for fluoride varnish applications and verbal education for the patient and family, but nurses also provided a lot of the set-up for the fluoride varnish tools to be used during application and provided a lot of the handouts. In contrast, some practices utilized their front office staff or other staff members to provide handouts and educational materials to patients and families. Additionally, a lot of the information provided by technology staff focused on entering information about oral health in the electronic medical record (EMR) system for patient information and billing insurance for the application of fluoride varnish. The perspective of the certified medical assistant interviewed was limited but seemed to be similar to that of the nurse assistant in that she did not provide a lot of verbal education to the patient and family about oral health, but was responsible for the set-up for the FV and for providing materials to the patient and family.

RQ5. How do the pediatric providers and pediatric primary care professionals describe their experiences with preventive dental health integration as a QTIP participant?

All participants talked about their experiences with preventive dental health in relation to the QTIP project. They described their experiences with preventive dental health integration as something they would not have otherwise been motivated to do if they were not involved within the QTIP project.

RQ5a. What are the challenges to preventive dental health integration in their practice?

QTIP participants described their challenges to integrate preventive dental health and their recommendations for other practices who are integrating preventive dental health. The key challenges for integration included: sustaining implemented strategies for preventive dental health, eagerness to engage within preventive dental health integration, and individual parent and child behaviors that influenced optimal oral health outcomes. These findings were similar to previous researchers that identified specific challenges when aiming to integrate oral health into medical settings (HRSA, 2011, 2012, 2014; Stella, 2002). Although all QTIP participants described challenges for integration, many practices (*n*=19) were characterized as having a strong level of integration and only a few practices (*n*=3) were characterized as having a moderate/weak level of integration. This characterization was based on their perspectives about preventive dental health integration in their practice. More specifically, those practices characterized with moderate/weak integration, did not have clear explanation as to how to address or overcome challenges to preventive dental health in comparison to the practices characterized as having a strong level of integration.

RQ5b. What are the recommendations that pediatric providers and pediatric primary care professionals provide for preventive dental health integration?

All QTIP participants provided their insight on best practices for preventive dental health integration in pediatric primary care settings. There were 12 key recommendations revealed through QTIP participant perceptions for integrating preventive dental health. Recommendations included: Providing educational resources

for patients and parents, establishing a referral network, gaining practice buy-in, including a provider incentive and a parent incentive, receiving preventive dental health education and training for their practice and staff, defining a preventive dental health integration structure, integrating oral health with other important health topics during well-child visits, gaining parent buy-in, promoting the value of preventive dental health integration, utilizing technology, and accessing fluoride varnish supplies.

5.2 Utility of the Conceptual Framework

This study was guided by the ecological perspective (Bronfenbrenner, 1997; Fisher-Owens et al., 2007; McLeroy, Bibeau, Steckler, & Glanz, 1988) and was situated within a constructionist qualitative approach. Based on the ecological perspective, multiple levels of influence can impact children and adolescent dental health outcomes, including: intrapersonal, interpersonal, institutional/organizational, community, and public policy factors (McLeroy, Bibeau, Steckler, & Glanz, 1988). In this study, I focused on exploring the level of influence at the institutional level by understanding perspectives of pediatric primary care providers, included within the institutional level. Findings of this study suggested that consistent with the ecological perspective, pediatric primary care providers are actors within the institutional level who have the opportunity to influence oral health outcomes for children and adolescents through the integration of preventive dental health into primary care settings. Using interviews, the QTIP participant perspectives helped us see how preventive dental health integration was implemented within their pediatric primary care settings. QTIP participants provided insight into how they contributed to their patient's oral health, collaborated with dental professionals in their local area, and addressed specific barriers related to the following:

public policy regulations on reimbursement for preventive dental health services, individual parent and patient behaviors, and how to adapt their organizational structure to include oral health as a specific focus. QTIP participants clarified that they were only one set of actors in the larger institutional level and that it may take more actors in the healthcare system to improve oral health outcomes which is congruent with a major framework in the literature that focuses on systems of healthcare and systems-level thinking. Systems-level thinking or system theory is a framework that encourages a connection between multiple components within a network or system. It suggests that collaborative engagement among members within the network, strategic processes, and a passion are key to changing how a system interacts by those actors involved (Leischow and Milstein, 2006; Leischow et al., 2008). However, by taking this first critical step in understanding the role of pediatric primary care practices in influencing oral health outcomes, we laid the groundwork for future studies to understand the feasibility of medical-dental collaboration.

5.3 Study Strengths and Limitations

Although this study has a number of strengths, there were some limitations that should be considered when interpreting the study's results. The sample in this study consisted only of QTIP participants in SC. Therefore, we did not capture perspectives from pediatric practices in SC that were integrating preventive dental health, but not involved in the QTIP project. Additionally, SC is a very unique state, geographically placed in the southeastern region of the US, predominately rural, and considered culturally and politically conservative. Consequently, results from this study may not be generalizable to all pediatric primary care practices in other cities, states, or regions of the

US with different public policies and access to healthcare professionals. Eighteen practices participated in the QTIP project and interviews were to be conducted with a representative from each practice, but due to leadership changes and demanding work schedules, only 15 out of the 18 pediatric practices were represented in this study. Moreover, this study was partially based on self-report data and participants could have provided socially desirable responses. However, the qualitative approach used in this study is a critical advantage, considering that QTIP participant responses provided a voice to better understand medical-dental collaboration models, information which could not have been collected through an exclusively quantitative approach (Fossey et al., 2002; Greene, 1994). Due to the incentivized participation within the QTIP project, I cannot confidently state that any preventive dental health integration was solely dependent upon QTIP training, materials, or recommendations, but could have been motivated by the incentive provided as part of the QTIP demonstration project. Despite these limitations, this study provided valuable information that can be used to contribute to the future development of feasible strategies for preventive dental health integration in primary care settings. I also provided QTIP participants with complimentary, digitally formatted preventive health materials for their practices. Providing the QTIP participants with these materials can further equip them with the useful information and empower them to continue to integrate preventive dental health within their pediatric primary care practices.

5.4 Implications for Future Research

This research represents a critical step in understanding the feasibility of preventive dental health integration as a medical collaboration model in primary care

settings. It is one of the few studies to: reveal the process, content, structure, and delivery of preventive dental health in primary care settings and to include the perspectives of pediatric providers and professionals on the incorporation of preventive dental health into their practice. Findings from this study indicated that preventive dental health integration in primary care settings is a feasible approach with the potential to reduce oral health disparities among children and adolescents, which aligns with key components from the U.S. Department of Health Resources and Service Administration report, *Integration of Oral Health and Primary Care Practice* that indicate that the expansion of integrating oral health competencies and implementation strategies into primary care settings will improve access for early detection and prevention, which will lead to improved oral health for children and adolescents (2014). This study makes several important contributions to the scientific literature. First, this study addresses the acceptability of medical-dental collaboration model structures in SC, by delineating the process through which preventive dental health integration was implemented within pediatric primary care settings. Public health strategies and theories were used to examine the process of preventive dental health integration and capture provider perceptions about including preventive dental health into pediatric primary care settings (Bradley et al., 2009; Bronfenbrenner, 1997; Dumitrescu, Wagle, Dogaru, & Manolescu, 2011; Fisher-Owens et al., 2007; Glanz et al., 2008; Linnan and Steckler, 2002; McLeroy, Bibeau, Steckler, & Glanz, 1988; Saunders, Evans, & Joshi, 2005). Through the use of qualitative interviews, QTIP participants were asked to describe recommendations for integrating preventive dental health in primary care practices. Twelve key recommendations were compiled based on their responses, which might not have been captured with a more quantitative

study. These recommendations can serve as the best practices developed across QTIP practices regarding the practical implementation of preventive dental health strategies for pediatric primary care settings.

These findings also have important implications for future research. Our study included only QTIP participants, so future studies should be conducted that include pediatric primary care practices that were not included in the original demonstration project. In this study, QTIP participants varied in education and occupation, but we did not conduct a distinct evaluation on how these different roles might affect the way preventive dental health is integrated, future studies should include a focus on how role delineation differs based on education and occupation and its effects on the integration of preventive dental health within the primary care setting. But, we did identify that improving existing organizational culture to recognize oral health integration as a collective initiative, in which all primary care health professionals have a significant role, will be key in the implementation of the medical-dental collaboration model success. Previous literature has supported this notion that organizational culture or an organization's environment, such as in a medical setting or healthcare facility can be encouraged to value oral health integration and understand the need for integration through the use of multiple providers within the healthcare system. This culture has an opportunity to permeate at varying levels in a medical setting and progress into a regular function of the organization's purpose (HRSA, 2012 & 2014).

Overall, the knowledge gained from this study can be used to support pediatric primary care settings in the quest to improve overall health outcomes for children and adolescents. Our findings can also provide other practices with recommendations on how

to best incorporate preventive dental health within the practice setting. Ultimately, the information obtained from this research can enhance existing systems of care, by revealing feasible opportunities to promote preventive dental health that are otherwise underutilized.

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APPENDIX A – RECOMMENDATIONS FOR PEDIATRIC PREVENTIVE CARE

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN

Recommendations for Preventive Pediatric Health Care

Bright Futures/American Academy of Pediatrics

Bright Futures

Each child and family is unique; therefore, these **Recommendations for Preventive Pediatric Health Care** are designed for the care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in satisfactory fashion. **Additional visits may become necessary** if circumstances suggest variations from normal.

Developmental, psychosocial, and chronic disease issues for children and adolescents may require frequent counseling and treatment visits separate from preventive care visits.

These guidelines represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to emphasize the great importance of **continuity of care** in comprehensive health supervision and the need to avoid **fragmentation of care.**

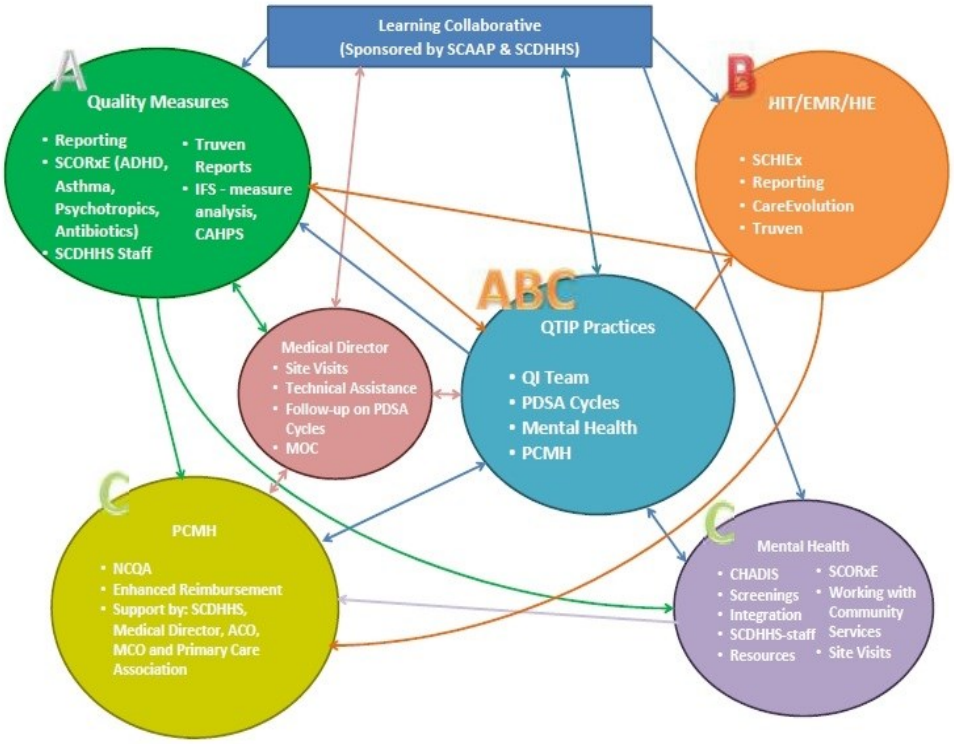
	INFANCY								EARLY CHILDHOOD							MIDDLE CHILDHOOD						ADOLESCENCE									
AGE[1]	PRENATAL	NEWBORN[2]	3–5 d	By 1 mo	2 mo	4 mo	6 mo	9 mo	12 m	15 mo	18 mo	24 mo	30 mo	3 y	4 y	5 y	6 y	7 y	8 y	9 y	10 y	11 y	12 y	13 y	14 y	15 y	16 y	17 y	18 y	19 y	20 y	21 y
HISTORY																															
Initial/Interval	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MEASUREMENTS																															
Length/Height and Weight		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Head Circumference		•	•	•	•	•	•	•	•	•	•	•																			
Weight for Length		•	•	•	•	•	•	•	•	•	•																				
Body Mass Index												•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Blood Pressure[3]		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SENSORY SCREENING																															
Vision		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Hearing		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DEVELOPMENTAL/BEHAVIORAL ASSESSMENT																															
Developmental Screening[4]							•				•		•																		
Autism Screening[5]											•	•																			
Developmental Surveillance[6]		•	•	•	•	•	•		•	•		•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Psychosocial/Behavioral Assessment		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Alcohol and Drug Use Assessment																						•	•	•	•	•	•	•	•	•	•	•
PHYSICAL EXAMINATION[7]		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PROCEDURES[8]																															
Newborn Metabolic/Hemoglobin Screening[9]	←—	—•	—→																												
Immunization[10]		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Hematocrit or Hemoglobin[11]					★				•		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Lead Screening[12]							•	•	•/★		•	•/★		•	•	•	•															
Tuberculin Test[13]				•			•		•		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dyslipidemia Screening[14]												•			•		•		•		•	•	•	•	•	•	•	•	←—	—•	—→	
STI Screening[15]																						•	•	•	•	•	•	•	•	•	•	•
Cervical Dysplasia Screening[16]																						•	•	•	•	•	•	•	•	•	•	•
ORAL HEALTH[17]							•	•	•/★		•/★	•/★	•/★	•/★	•–		•–															
ANTICIPATORY GUIDANCE[18]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

1. If a child comes under care for the first time at any point on the schedule, or if any items are not accomplished at the suggested age, the schedule should be brought up to date at the earliest possible time.
2. A prenatal visit is recommended for parents who are at high risk, for first-time parents, and for those who request a conference. The prenatal visit should include anticipatory guidance, pertinent medical history, and a discussion of benefits of breastfeeding and planned method of feeding per AAP statement "The Prenatal Visit" (2001) [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;107/6/1395].
3. Every infant should have a newborn evaluation after birth, breastfeeding encouraged, and instruction and support offered.
4. Every infant should have an evaluation within 3 to 5 days of birth and within 48 or 72 hours after discharge from the hospital to include evaluation for feeding and jaundice. Breastfeeding infants should receive formal breastfeeding evaluation, encouragement, and instruction as recommended in AAP statement "Breastfeeding and the Use of Human Milk" (2005) [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;115/2/496]. For newborns discharged in less than 48 hours after delivery, the infant must be examined within 48 hours of discharge per AAP statement "Hospital Stay for Healthy Term Newborns" (2004) [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;113/5/1434].
5. Blood pressure measurement in infants and children with specific risk conditions should be performed at visits before age 3 years.
6. If the patient is uncooperative, reassess within 6 months per AAP statement "Eye Examination in Infants, Children, and Young Adults by Pediatricians" (2007) [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;111/4/902].
7. All newborns should be screened per AAP statement "Year 2000 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs." (2000) [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;106/4/798]. Joint Committee on Infant Hearing, Year 2007 position statement: principles and guidelines for early hearing detection and intervention programs. Pediatrics. 2007;120:898–921.
8. AAP Council on Children With Disabilities, AAP Section on Developmental Behavioral Pediatrics, AAP Bright Futures Steering Committee, AAP Medical Home Initiatives for Children With Special Needs Project Advisory Committee. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. Pediatrics. 2006;118:405–420 [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;118/1/405].
9. Sapien RE, Hyman SL, Johnson CP, et al. Identifying children with autism early? Pediatrics. 2007;119:132–133 [URL: http://pediatrics.aappublications.org/cgi/content/full/119/1/132].
10. At each visit, age-appropriate physical examination is essential, with infant totally unclothed, older child undressed and suitably draped.
11. Times may be modified, depending on entry point into schedule and individual need.
12. Newborn metabolic and hemoglobinopathy screening should be done according to state law. Results should be reviewed at visits and appropriate retesting or referral done as needed.
13. Schedules per the Committee on Infectious Diseases, published annually in the January issue of Pediatrics. Every visit should be an opportunity to update and complete a child's immunizations.
14. See AAP Pediatric Nutrition Handbook, 5th Edition (2003) for a discussion of universal and selective screening options. See also Recommendations to prevent and control iron deficiency in the United States. MMWR. 1998;47(RR-3):1–36.
15. For children at risk of lead exposure, consult the AAP statement "Lead Exposure in Children: Prevention, Detection, and Management" (2005) [URL: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;116/6/1036]. Additionally, screening should be done in accordance with state law where applicable.
16. Perform risk assessments or screens as appropriate, based on universal screening requirements for patients with Medicaid or high prevalence areas.
17. Tuberculosis testing per recommendations of the Committee on Infectious Diseases, published in the current edition of Red Book: Report of the Committee on Infectious Diseases. Testing should be done on recognition of high-risk factors.
18. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report" (2002) [URL: http://nhlbi.nih.gov/guidelines/cholesterol/atp3_rpt.htm] and "The Expert Committee Recommendations on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity." Supplement to Pediatrics. In press.
19. All sexually active patients should be screened for sexually transmitted infections (STIs).
20. All sexually active girls should have screening for cervical dysplasia as part of a pelvic examination beginning within 3 years of onset of sexual activity or age 21 (whichever comes first).
21. Referral to dental home, if available. Otherwise, administer oral health risk assessment. If the primary water source is deficient in fluoride, consider oral fluoride supplementation.
22. At the visits for 3 years and 6 years of age, it should be determined whether the patient has a dental home. If the patient does not have a dental home, a referral should be made to one. If the primary water source is deficient in fluoride, consider oral fluoride supplementation.
23. Refer to the specific guidance by age as listed in Bright Futures Guidelines. (Hagan JF, Shaw JS, Duncan PM, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2008.)

KEY

•– to be performed ★– risk assessment to be performed, with appropriate action to follow, if positive ←—•—→ = range during which a service may be provided, with the symbol indicating the preferred age

APPENDIX B – CHIPRA QI GRANT CONCEPTUAL RATIONALE



APPENDIX C – CHIPRA-QI DEMONSTRATION GRANT CORE INDICATORS

MEASURES RECOMMENDED FOR INITIAL CORE SET OF CHILDREN'S HEALTHCARE QUALITY FOR VOLUNTARY REPORTING BY MEDICAID AND CHIP PROGRAMS. Federal Register Dec. 29, 2009

PREVENTION and HEALTH PROMOTION

Prenatal/ Perinatal

1. Frequency of ongoing prenatal care
2. Timeliness of prenatal care- the percentage of deliveries that received prenatal care visit as a member of the organization in the first trimester or within 42 days of enrollment
3. Percent of live births weighting less than 2,500 grams
4. Cesarean Rate for low-risk first birth women (NQF 0471)

Immunizations:

5. Childhood immunization status (NQF 0038)
6. Immunizations for adolescents

Screening

7. BMI documentation 2-18 years old (NQF 0024)
8. Screening using standardized screening tools for potential delays in social and emotional development (ABCD initiative measure)
9. Chlamydia screening for women (NQF 0033)

Well-child Care Visits

10. WCVs in the first 15 months of life
11. WCVs in the third, fourth, fith and sixth years of life
12. WCV for 12-21 yrs of age- with PCP or OB-GYN

Dental

13. Total eligibles receiving preventive dental services (EPSDT measure line 12B)

MANAGEMENT of ACUTE CONDITIONS

Upper Respiratory-Appropriate Use of Antibiotics

14. Appropriate testing for children with pharyngitis (NQF 0002)
15. Otitis Media with Effusion- avoidance of inappropriate use of systemic antimicrobials- age 2-12

Dental

16. Total EPSDT eligibles who received dental treatment services (EPSDT CMS Form 416, Line 12C)

Emergency Department

17. Emergency Department (ED) Utilization- Average number of ED visits per member per reporting period

Inpatient Safety

18. Pediatric catheter-associated blood stream infection rates (PICU and NICU) (NQF 0139)

MANAGEMENT of CHRONIC CONDITIONS

Asthma

19. Annual number of asthma patients (> than 1 year old) with, than, or equal to 1 asthma related ER visit (S/AL Medicaid Program)

ADHD

20. Follow-up care for children prescribed attention-deficit hyperactivity disorder (ADHD) medication (Continuation and Maintenance Phase) (NQF 108)

Mental Health

21. Follow up after hospitalization for mental illness

Diabetes

22. Annual hemoglobin A1C testing (all children and adolescents diagnosed with diabetes)

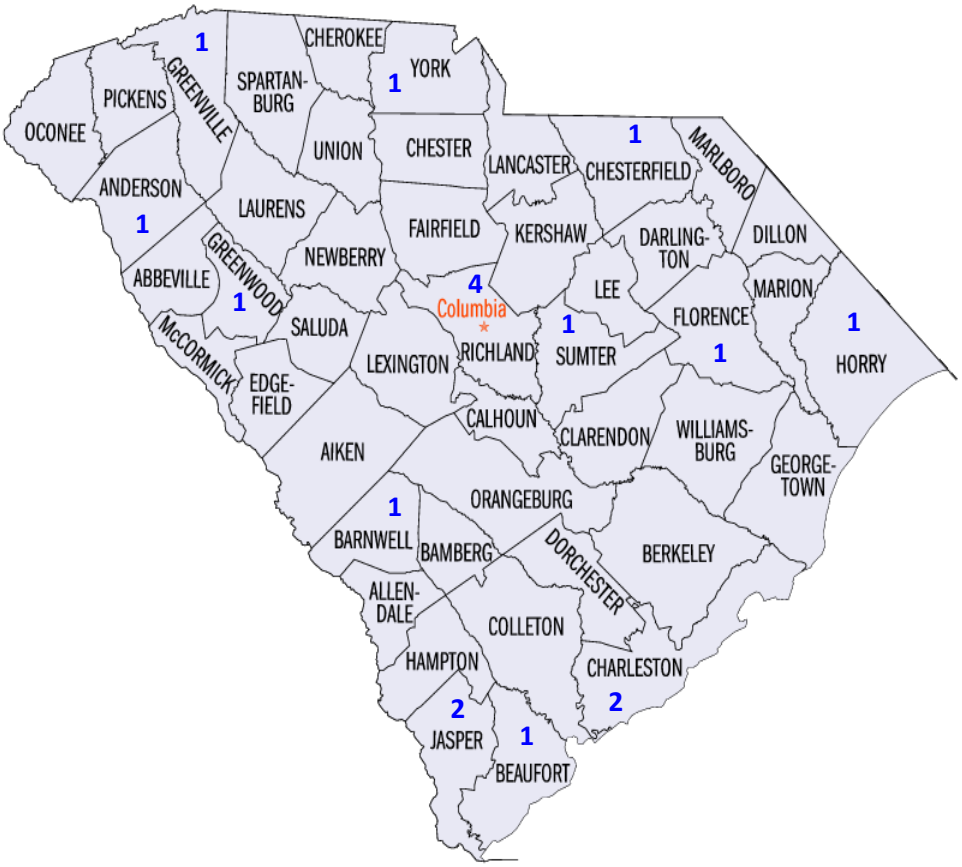
Family experience of care

23. CAHPS Health Plan Survey 4.0. Child Version including Medicaid and Children with Chronic Conditions supplemental items

Availability

24. Children and adolescents' access to primary care practitioners (PCP) by age and total

APPENDIX D – CHIPRA-QI DEMONSTRATION GRANT CORE INDICATORS



Adapted by: U.S. Census Bureau; using American FactFinder;
<http://quickfacts.census.gov/qfd/maps/south_carolina_map.html>; (3 July 2014).

APPENDIX E – DATA ACQUISITION APPROVAL

approval

Lynn Martin <MartinLy@scdhhs.gov>

Fri 6/27/2014 9:18 AM

To:NELSON, JONI <dunmyer@email.sc.edu>;

Cc:Mary Kenyon Jones (kenyonm@dhec.sc.gov) <kenyonm@dhec.sc.gov>;

I have finally secured approval (DHHS, CMS and my QTIP evaluation team) to move forward on this project
Lynn

-----Original Message-----
From: NELSON, JONI [mailto:dunmyer@email.sc.edu]
Sent: Thursday, June 26, 2014 7:41 AM
To: Lynn Martin
Subject:

Hi Lynn,

I hope the work week is going well for you!

I wanted to check in, per your request, regarding internal approval to receive PDSAs and billing docs for review.

Talk to you soon!

(Again, thank you very much for meeting with me last week during your busy schedule)

Joni D. Nelson, MS

Research Associate, South Carolina Rural Health Research Center
220 Stoneridge Drive, Suite 204 - Columbia, SC 29210

PhD Candidate, Dept. of Health Promotion, Education, and Behavior Arnold School of Public Health -USC
800 Sumter Street - RM. 311 - Columbia, SC 29208

dunmyer@email.sc.edu
Cell: (843)-906-4573

Confidentiality Note

This message is intended for the use of the person or entity to which it is addressed and may contain information, including health information, that is privileged, confidential, and the disclosure of which is governed by applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this information is STRICTLY PROHIBITED.

If you have received this in error, please notify us immediately and destroy the related message.

APPENDIX F – A PRIORI CODE SCHEMATIC FOR SPECIFIC AIM 1

Descriptive Codes	Code Description	Potential Category
Interprofessional collaboration	QTIP practice members from varying occupations had opportunities to engage, share resources, communicate about what worked well and what did not in relation to preventive dental health integration	**How**
Oral health integration	The inclusion of preventive dental health within QTIP practices via FV application, developing dental referral lists, preventive oral health education with patient and family and testing at-home water source	**How**
Adherence to project objectives	QTIP practices achieved the objectives of the demonstration project	**Extent**
Learning collaborative materials	Handouts, website links, and presentations related to preventive dental health, national recommendations, and toolkits for oral health in medical settings	**Extent**
Learning collaborative training	Expert preventive dental health presentations and FV certification	**Extent**
Attendance requirement met	QTIP pediatric practices met the requirements of having at least 3 members of their practice present at Learning collaboratives	**Extent**

APPENDIX G – A PRIORI CODE BOOK FOR SPECIFIC AIM 2

Descriptive Codes	Code Description	Potential Category
Role delineation	Each participant's role in their practice	**Infrastructure**
Oral health experiences	Participant experience with oral health in their primary care setting	**Perceived Oral Health Experience**
Challenges	Barriers to preventive dental health integration in primary care practices	**Preventive Dental Health implementation**
Preventive Dental Health Integration	The inclusion of preventive dental health within primary care practice visits	**Preventive dental health implementation**
Future Recommendations	Opportunities identified by lead stakeholders to include or not include additional partners within the oral health improvement movement	**Perceived Recommendations**
QTIP training and materials	Directed by QTIP leadership, a facilitation of educational trainings about the core project indicators, Learning collaboratives, technical assistance, and Quality improvement techniques taught to QTIP participants	**QI Oral Health Competency**
Attitude: - Positive - Negative - Performative	Varying levels of attitude shown by participants responses, actions taken, and engagement within the QTIP project	**Perception**
Educational variances	Varying academic degrees and training obtained by each participant i.e. Masters education, PhD training, health administration, clinical training and education (e.g. MD, nurses, etc.)	**Perception**

APPENDIX H– CODEBOOK FOR SPECIFIC AIM 2: QUALITATIVE INTERVIEWS WITH QTIP PARTICIPANTS

Descriptive Codes	Code Category
Knowledge of patient Knowledge of QTIP participant Oral health experiences	**Preventive dental health knowledge**
Negative attitude Positive attitude	**Attitude**
Sustaining improvement No time Practice buy-in Practice training Resources Parent resistance Individual parent/patient behaviors Staff notifications and communication Information technology Tracking fluoride varnish SES barriers Reimbursement Billing and coding Multiple handouts and verbal instructions for parents with oral health in their primary care setting	**Challenges**
Learning collaborative PDSA cycles Education oral health materials	**QTIP Training and Materials**
Fluoride varnish supplies Technology needs Referral network Practice buy-in Physician incentives Parent incentives Training availability Integration structure Integration with other topics	**QTIP Participant Preventive dental health recommendations (Best Practices)**

Descriptive Codes	Code Category
Parent buy-in Educational resources for parents and patients Integration benefits	**QTIP Participant Preventive dental health recommendations (Best Practices) cont.**
Water fluoridation testing Dentist referral Patient communication Staff communication Technology tools Verbal education for patients and parents Fluoride varnish application Oral health educational materials Oral health educational materials source Oral health screenings (oral health risk assessments) Training and education for practice Acceptance of oral health by patients and parents	**Preventive dental health integration**
Organizational structure Role delineation Educational variances	**Pediatric practice structure**

APPENDIX I– INTERVIEW GUIDE

Preventive Dental Health Integration in Primary Care Settings
INTERVIEW GUIDE

Interviewer:	**Location Site:**
Participant # (numerical):	**Date:**
Start Time:	**End Time:**

Hello, Thank you for meeting with me today. As you know, this interview will contribute to the knowledge of efforts made to reduce oral health disparities in children and adolescents. The interview will touch on your experiences including preventive dental health within your practice. The goal is to answer each question to the best of your knowledge.

Did you have a look at the consent form I sent you by email (or fax)?

I have a copy with me here.

As you read in the consent form, you are free to stop the interview at any time and refuse to answer any question you wish.

Do you have any questions?

Perfect. Let's both sign here.

Are we ready to start?

[WRITE START TIME and START AUDIO RECORDER]

GENERAL OCCUPATIONAL QUESTIONS

I would like to start by asking a few short questions about your history working in the healthcare system.

1. How long have you been practicing your profession?

2. What is your position/title? Description of your position/role.

3. Where is the location of your practice?

PREVENTIVE DENTAL HEALTH INTEGRATION EXPERIENCES

Thinking about your role in your practice, I want to ask you a few questions about your experience with oral health.

4. What is preventive dental health? What does it mean to you?
5. How can you help with prevention of dental health problems with your patients?
6. In what ways do you see yourself integrating preventive dental health within your clinical setting for your patients?
   PROBE: What types of aids or materials about preventive dental health do you use within your practice?
   PROBE: Where do you receive preventive dental health materials?
   PROBE: How did you talk to your patients about preventive dental health behaviors?
   PROBE: What were the roles and numbers of individuals in your practice who were involved with preventive dental health integration?

7. How has your participation in the QTIP project assisted you and your practice preventive dental health integration within your practice?
   PROBE: How did you use PDSA cycles to integrate preventive dental health within your practice?
   PROBE: In what ways did the QTIP Learning collaboratives help you to integrate preventive dental health within your practice?

CHALLENGES

8. What are some of the challenges to integrating preventive dental health in primary care settings?
   PROBE: How do you address these challenges?
   PROBE: Describe any challenges that you have with patients receiving preventive dental health information in your office.

PROBE: Describe how reimbursement for preventive dental health integration in primary care settings is a barrier.

Before closing out the interview, I want to ask you about what you think can be done to include preventive dental health into primary care settings in SC, based on your experiences as a QTIP participant.

RECCOMENDATIONS

9. Tell me how oral health can be best included within a well-child visit.
   PROBE: What would be your recommendations?

10. Please describe what a primary care practice would need to integrate preventive dental health into their actual practice.
    [USE PROBES, IF NEEDED]
    PROBE: Would you need some type of incentive? (e.g. insurance reimbursements)
    PROBE: Would you need more infrastructure or change in organization? (e.g. additional staff or redesign of workflow)
    PROBE: Would you need more technical assistance and training on oral health prevention?
    PROBE: Is there any additional technology that you would need?

This concludes the interview. You provided valuable input to assist in the efforts of this study. Are there any other additional comments that you wanted to share about your experiences with preventive dental health integration and/or as a QTIP participant?

Thank you for your participation.

APPENDIX J– INFORMED CONSENT FORM

DEPARTMENT OF HEALTH PROMOTION, EDUCATION, AND BEHAVIOR
ARNOLD SCHOOL OF PUBLIC HEALTH

QTIP PARTICIPANT CONSENT FORM:

Introduction
You are invited to participate in research study conducted by a student from the Arnold School of Public Health at the University of South Carolina. The Institutional Review Board of the University of South Carolina has reviewed this study for the protection of the rights of human participants in research studies, in accordance with federal and state regulations. Your signature on this consent form will acknowledge that you received all the information and have been given an opportunity to discuss your questions and concerns with the investigator(s).

Purpose
The purpose of the study is to conduct a retrospective process evaluation that explores how preventive dental health was integrated within pediatric primary care settings of South Carolina. For this purpose, we would like to interview the QTIP participants to better understand their perspectives about this process.

Description of Study Procedures
If you agree to participate, you will be asked questions about your perceptions and experiences with preventive dental health in primary care settings, and your thoughts on its implementation. Each participant of the study will complete an interview with the research investigator. Interviews will be audio recorded and written notes will be taken. There is no right or wrong answers to the interview questions. Each interview should last no longer than one hour.

Risks of Participation
There are no foreseeable risks associated with participating in this research. Appropriate steps will be followed to protect your privacy.

Benefits of Participation
There is no direct benefit for your participation. There will be no compensation for your participation. But, participants will receive complimentary, digitally formatted; dental preventive health materials for their practice. If you choose to participate, you will be helping researchers to better understand the process and feasibility of preventive dental health integration within primary care settings in South Carolina. This knowledge may assist other practices who expand their services in the future to include preventive dental health and inform future policy decisions.

Voluntary Participation
Participation in this study is voluntary. You are free not to participate or to withdraw at any time, for whatever reason, without negative consequences. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner.

Confidentiality of Records
Participation will be confidential. If coded, a number will be assigned to each participant at the beginning of the project. This number will be used on project records rather than your name, and no one other than the researchers will be able to link your information with your name.

Contact Person(s)
For more information concerning this research or questions about your rights as a research subject you can contact any of the research members below:
Joni D. Nelson: dunmyer@email.sc.edu (843-906-4573)
Dr. Mindi Spencer: mspencer@mailbox.sc.edu

Signatures /Dates
I have read (or have had read to me) the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions. I give my consent to participate in this study, although I have been told that I may withdraw at any time without negative consequences. I have received (or will receive) a copy of this form for my records and future reference.

Signature: _____

Date: _____

As a representative of this study (and Formal Witness), I have explained to the participant or the participant's legally authorized representative the research purpose, the procedures,

the possible benefits, and the risks of this research study; the alternatives to being in the study; the voluntary nature of the study; and how privacy will be protected.

Signature: _____

Date: _____

APPENDIX K– RECRUITMENT LETTER

DEPARTMENT OF HEALTH PROMOTION, EDUCATION, AND BEHAVIOR
ARNOLD SCHOOL OF PUBLIC HEALTH

Dear QTIP Participant,

You are invited to participate in a qualitative research study conducted by Mrs. Joni Nelson, a doctoral student from the Arnold School of Public Health at the University of South Carolina.

Purpose: The purpose of the study is to explore how preventive dental health was integrated within pediatric primary care settings in South Carolina as part of the QTIP demonstration project. To accomplish this, I am interviewing the QTIP participants to better understand your perspectives on preventive dental health integration.

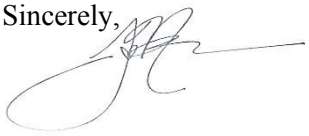
Study Procedures: If you agree to participate, you will be asked questions about your perceptions and experiences with preventive dental health in primary care settings. Each participant of the study will complete an interview with Mrs. Nelson that will last no longer than 30-45 minutes. This can either be in-person or by phone.

Eligibility and Participation Benefits: In order to be eligible for this study, your practice must have participated in the CHIPRA Quality Demonstration Grant as a QTIP partner or participant. To thank you for your time, all participants will receive complimentary, digitally-formatted and print dental preventive health materials for their practices. Although participation in this study will have little direct benefit to you, the knowledge gained may benefit others. This knowledge may assist other primary care practices that hope to expand their services to include preventive dental health, as well as inform the development of innovative programs to improve the oral health of children and adolescents in South Carolina.

Please feel free to contact me with any questions about the study using the contact information provided below.

Thank you in advance for your time and consideration.

Sincerely,



Joni D. Nelson, MS
Research Associate, South Carolina Rural Health Research Center
220 Stoneridge Drive, Suite 204 - Columbia, SC 29210

PhD Candidate, Dept. of Health Promotion, Education, and Behavior
Arnold School of Public Health –USC
915 Greene Street, Suite 534 Cell: (843)-906-4573 Columbia, SC 29208 Email: dunmyer@email.sc.edu

APPENDIX L– RECRUITMENT FLYER

Great efforts are needed to improve the oral health of children and adolescents in South Carolina.

We can learn how to better integrate preventive dental health with your help!

*The **purpose** of this study is to better understand how primary care settings might integrate preventive dental health in their practices.*

Who? Health care providers and staff who participated in the QTIP (CHIPRA) Demonstration Project.

What? Participants will complete an in-depth, 15-25 minute interview about their perceptions and experiences with preventive dental health in primary care settings.

Where? Interviews can be conducted either in person or by phone.

How? To participate in this study or for more information, please contact Mrs. Joni Nelson.

Email: **Dunmyer@email.sc.edu**
Phone: 843.906.4573

Thank you!!!

This study has been approved by the University of South Carolina Institute Review Board Protocol #00036574