

ABSTRACT

Dental Caries, Obesity, and Asthma During Childhood: A Qualitative Multiple Case Study to Determine Where Community-based Prevention Strategies Intersect to Guide a Coordinated Approach for 21st-Century Families

Becki Hale, Ed.D.

Mentor: Tony L. Talbert, Ed.D.

Dental caries, obesity, and asthma are common, chronic conditions during childhood. Each of these health conditions is widely prevalent among children in the United States. Not only are these three chronic conditions common among children, but they can be comorbidities of one another and share many of the same risk factors, particularly those risk factors influenced by the social determinants of health. Based on the experience of the researcher and confirmed by a gap in the research, there is a missed opportunity to address dental caries, obesity, and asthma collaboratively.

Research shows that dental caries, obesity, and asthma episodes for children are preventable through primary prevention strategies. However, successful community health strategies for the prevention of these three health conditions occur through a more siloed approach. There is also a complexity to childhood dental caries, obesity, and asthma that generates the necessity for multi-variate primary prevention efforts. Solely providing community education strategies is not enough for the prevention of these three health conditions. A multiple case study investigation of multi-level strategies—using the

Spectrum of Prevention as the theoretical framework—determines overall strategy alignment for dental caries, obesity, and asthma while helping to coordinate community health improvement efforts. The Spectrum of Prevention is a framework that identifies six levels of prevention to move beyond the perception of prevention being only educational strategies.

Dental caries, obesity, and asthma episodes often co-occur among children in the United States and share many risk factors, yet these conditions are preventable. There is a need to address these conditions more collaboratively through prevention efforts.

Ultimately, this multiple case study fills a gap in research regarding where community-based prevention strategies align on the Spectrum of Prevention for childhood dental caries, obesity, and asthma, to guide a more coordinated approach with future community health strategies in the prevention of these three health conditions.

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Study to Determine Where Community-based Prevention Strategies Intersect to Guide a
Coordinated Approach for 21st-Century Families

by

Becki Hale, B.S., M.A.

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Brooke Blevins, Ph.D., Chairperson

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Approved by the Dissertation Committee

Tony L. Talbert, Ed.D., Chairperson

Leanne Howell, Ph.D.

Lacy K. Crocker Papadakis, Ph.D.

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J. Larry Lyon, Ph.D., Dean

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DEDICATION

To my husband, Michael for his love and support
This would not have been possible without him

To my parents, Gary and Kathy Porter, who have always believed in me and encouraged
me to achieve my goals

To the children and families within all communities of the Cook Children's service
region and programs led by the Center for Children's Health
May we continue to create community collaborations and system-level change for all
children to readily access preventive health care programs and services

CHAPTER ONE

Introduction to the Problem of Practice

Introduction

Dental caries, obesity, and asthma are common, chronic conditions during childhood. Each of these health conditions is widely prevalent among children in the United States. Not only are these three chronic conditions common among children, but they can be comorbidities of one another and share many of the same risk factors, particularly those risk factors influenced by the social determinants of health. Research shows that dental caries, obesity, and asthma episodes for children are preventable through primary prevention strategies. There are successful community health prevention programs and strategies offered across the country attempting to prevent dental caries, obesity, or asthma during childhood, but through a more siloed approach, focusing on only one of these conditions at a time. Based on the experience of the researcher and confirmed by a gap in the research, there is a missed opportunity to address dental caries, obesity, and asthma collaboratively. In the 21st century, families manage ever-changing priorities, technology advancements, cultural norms, and communication methods. This constant shift in priorities for families brings challenges to engaging families in community health strategies that promote positive behavior change for these three health conditions.

There is also a complexity to dental caries, obesity, and asthma, particularly during childhood. This complexity generates both the necessity for and barriers to multi-variate primary prevention efforts. Solely providing community education strategies or

social service resources is not enough to prevent these three health conditions. A multiple case study investigation of multi-level strategies using the Spectrum of Prevention framework to determine where strategies for dental caries, obesity, and asthma align will help to coordinate community health improvement efforts more strategically.

The study's overall focus determines a coordinated approach for community health professionals to use in addressing childhood dental caries, obesity, and asthma through the lens of the theoretical framework, the Spectrum of Prevention. The goal of the study aims to synchronize multi-variate prevention efforts for dental caries, obesity, and asthma from a community-based strategies aspect. Ultimately, this multiple case study fills a gap in research regarding where community-based prevention strategies align on the Spectrum of Prevention for childhood dental caries, obesity, and asthma, to guide a more coordinated approach with future community health strategies in the prevention of these three health conditions.

Statement of the Problem

Given the relationship between dental caries, obesity, and asthma during childhood, addressing them through a more coordinated approach with community strategies that align with the Spectrum of Prevention will achieve a more significant impact. Research lacks community health strategies that collaboratively address dental caries, obesity, and asthma among children. The prevalence and severity of these three chronic conditions necessitate prevention efforts with families, especially families of a racial minority or low income. Traditionally, dental caries, obesity, and asthma prevalence during childhood are assessed independently of one another; therefore, the

magnitude of each of these conditions is discussed separately in the next three paragraphs below.

Dental caries, often referred to as the “silent epidemic,” not only negatively affects a child’s dental health, but because oral health and *general health* are linked, dental caries also impact a child’s overall health and well-being. The Centers for Disease Control and Prevention (CDC) asserts more than one-third (37%) of all children in the United States ages two through eight have experienced dental caries in their primary teeth, and over half (58%) of adolescents between the ages of 12–19 have experienced dental caries in their permanent teeth (Dye et al., 2015). The CDC also reports that 14% of children ages two–eight and 15% of children 12–19 have untreated dental caries (Dye et al., 2015). Low-income children suffer from a disproportionate share of dental caries compared with their more affluent peers (Dye et al., 2012). Children with untreated dental caries can suffer from chronic pain, an inability to eat comfortably and chew well, emotional stress from discolored or damaged teeth, and the inability to concentrate and learn (American Academy of Pediatrics, 2016; Guarnizo-Herreño & Wehby, 2012; United States Department of Health and Human Services, 2000). A study by Guarnizo-Herreño and Wehby (2012) using dental health measures of school-age children ages 6–17 from the 2007 National Survey of Children’s Health finds that “poorer child dental health is significantly associated with reduced school performance and psychosocial well-being” (p. 1155). Good dental health is a foundational element of a child’s growth and development as the prevalence and severity of dental caries can profoundly impact a child’s quality of life.

Many scholars conclude there is an obesity epidemic plaguing United States' children that can lead to myriad preventable health conditions, even substantiating increased risk of morbidity and mortality. Recent investigations show that childhood obesity is a severe concern affecting more than 13 million children in the United States, at a rate of 18.5% (Hales et al., 2017). Obesity is more prevalent in Hispanic and Black children, particularly males, as compared to White children (Hales et al., 2017). Obesity rates also increase in households where the parent or caregiver has a lower education status (Ogden et al., 2018). Obesity is a concern because it can bring about a stigma regarding the child's weight that impacts their psychological and physical health, including but not limited to being a victim of bullying, potential depression, anxiety and substance abuse, even social isolation, and adverse academic outcomes (Pont et al., 2017). Growing evidence supports that childhood obesity continues into adulthood, mainly when obesity is present during adolescence (St-Onge et al., 2003). Children carrying obesity into adulthood, coupled with the adverse health outcomes of obesity, many scholars conclude that childhood obesity is becoming a "public health crisis" (Ebbeling et al., 2002; Lobstein et al., 2004; Reilly, 2005).

Although the initial cause of asthma is not definitive, its symptoms can vary in severity resulting in limited airflow and impaired breathing, but the symptoms are preventable. There are a little over eight percent of children in the United States under 18 years of age who currently have asthma (Centers for Disease Control and Prevention [CDC], 2017). Poorly controlled asthma may cause a child to miss school more often, affect the child's academic performance, and cause parents to lose work to care for this child (Visness et al., 2010). Asthma symptoms in children can become so severe that

rendering care within an emergency department or admittance to a hospital is warranted. Although the prevalence of asthma transcends across every race, gender, and age—health disparities do exist among low-income and racial minority populations (United States Department of Health and Human Services, 2014). The research concludes that asthma is a substantial public health problem for children due to the increased use of emergency care, increased rate of hospital admissions, and the increased number of missed school days (Hasegawa et al., 2015; Murray et al., 2017; United States Department of Health and Human Services, 2014).

Not only are dental caries, obesity, and asthma prevalent, chronic conditions among children in the United States—as explained in the three previous paragraphs—but a relationship also exists through overlapping risk factors (Chi et al., 2017; Genova et al., 2018; Marshall et al., 2007; Spiegel & Palmer, 2012). Some research even suggests that these conditions are comorbidities of one another (Ahmadizar et al., 2016; Alavaikko et al., 2011; Black et al., 2012; Costacurta et al., 2014; Garcia et al., 2017; Maupome et al., 2010; Pulgaron, 2012; Reilly, 2005). Is there overlap occurring amongst health prevention services for children with dental caries, obesity, or asthma? Given the relationship between childhood dental caries, obesity, and asthma, the researcher considers whether these three health conditions can be addressed more collaboratively through community-based prevention strategies.

Community health strategies exist for the prevention of dental caries, obesity, and asthma during childhood, but the strategy efforts are more siloed (Beasley et al., 2015; Kuo et al., 2012). There is a missed opportunity not to address the prevention of childhood dental caries, obesity, and asthma more collaboratively, especially given their

relationship. Successful health promotion and disease prevention strategies often require a systems approach, interdisciplinary collaboration, and a well-educated community to align prevention messages and practices (Cohen & Swift, 1999). Although it may seem counterintuitive, it is because of their complexity and need for multi-variate strategies that community health professionals begin to address dental caries, obesity, and asthma prevention more collaboratively. All health services professionals, both community-focused and clinical, need to maximize time and resources while engaging families in prevention strategies for all three of these health conditions together, as complex problems often require comprehensive solutions. Whether community-based or clinical, health service strategies today are regularly needed to develop more effective and efficient services. It can be challenging to engage families of the 21st century in health prevention practices for dental caries, obesity, or asthma alone. If community health professionals are already working with families for one of these three health conditions regarding their child, aligning key messages and strategies will reach a more significant impact to prevent the other two health conditions from occurring if they are not already present in a child. The likelihood of a child having one or more of these conditions—dental caries, obesity, and asthma—is common; therefore, equipping community health professionals to engage families with prevention strategies for all three of these conditions at each encounter is essential. Addressing these conditions together may also maximize resources among health care and non-profit agencies, as preventing chronic diseases can be costly.

Purpose of the Study

Dental caries, obesity, and asthma episodes often co-occur among children in the United States and share many risk factors, yet these conditions are preventable. There is a need to address these conditions more collaboratively through prevention efforts, yet research is lacking in coordinated community-based prevention strategies for these three health conditions. This multiple case study explores the barriers and strong commonalities among community health strategies aligning with the theoretical framework—Spectrum of Prevention—to recommend a coordinated approach for community health professionals to address the prevention of childhood dental caries, obesity, and asthma episodes more collaboratively. Ultimately, this multiple case study aims to develop a lens for better coordination between community health professionals, primary clinical health care providers, and other community stakeholders working to improve children’s health and well-being.

To gain a well-rounded view of the circumstances within this research topic, the researcher selects a multiple case study design. Yin (1999) states that these conditions favor case studies over other methods for health services research: the problem involves “‘mega-systems’ of great complexity” linking multiple components in new ways, there are ever-changing rules within a health-system, and corporate affiliations and motivations can be difficult to track (p. 1209). The conditions that Yin (1999) speaks to for health services research are increasingly applicable for this multiple case study due to the complexity of childhood dental caries, obesity, and asthma. The investigation methodology compounds the interdisciplinary approach required for the prevention of these conditions individually in determining how to approach these three health conditions more collaboratively. Collaborative efforts for the prevention of dental caries,

obesity, and asthma during childhood will most likely require system-level change and interdisciplinary coordinated efforts.

The multi-faceted investigation within this multiple case study involves program families, community health professionals, medical and dental health care professionals, and community stakeholders. The perspective of the families provides specific insight into the barriers they face with seeking community or clinical health services to prevent dental caries, obesity, or asthma episodes with their children. This multiple case study strives to understand the home environment and day-to-day struggles of these families regarding the prevention of childhood dental caries, obesity, and asthma—which is absent in the literature. The study will also involve community-based program staff, medical and dental professionals, and community stakeholders with connections to programs within the Center for Children’s Health. The perspective of program staff, medical and dental professionals, and community stakeholders provide an awareness of what successes and challenges these groups of individuals face in working to engage families in prevention efforts around dental caries, obesity, and asthma with their children.

Research Questions

The primary research question that will guide this multiple case study is (a) Where do community health strategies that address childhood dental caries, obesity, and asthma intersect on the Spectrum of Prevention? The secondary research questions are (a) How does the family environment influence a child’s development or management of dental caries, obesity, and/or asthma? (b) What roles do program staff play in engaging families in community-based prevention strategies that address dental caries, obesity,

and/or asthma during childhood? (c) What roles do medical and dental providers play in promoting community-based prevention strategies that address dental caries, obesity, and/or asthma during childhood? (d) What methods are used to rally community stakeholders around the prevention of dental caries, obesity, and/or asthma?

Through the research questions indicated, this multiple case study will uncover the intersectionality of barriers and successes for addressing dental caries, obesity, and asthma—which will also highlight solutions for strategic collaboration among these three health conditions. The void in current research exists in the collaboration among prevention strategies for these three health conditions. Many effective community-based prevention strategies exist for addressing dental caries, obesity, or asthma through a single-focused lens (American Academy of Pediatric Dentistry, 2013; Brock et al., 2019; Butterfoss et al., 1993; Collins et al., 2016; Crawford et al., 2013; Greenburg et al., 2008; Haire-Joshu et al., 2018; Hoppe et al., 2013; Ismail, 1998; Jhun et al., 2016; Liptzin et al., 2016; Mitchell et al., 2012; Murray et al., 2017; Rabito et al., 2017; Turyk et al., 2013; United States Department of Health and Human Services, 2000). However, to fill a gap in the research and address a collaborative approach for these multiple health conditions—dental caries, obesity, and asthma—this multiple case study requires a theoretical framework that embraces “comprehensive strategy development, coupled with interdisciplinary collaboration” (Cohen & Swift, 1999, p. 204). The selected multi-dimensional theoretical framework for this multiple case study is discussed more overtly in the next section.

Theoretical Framework

With dental caries, obesity, and asthma sharing risk factors and often co-occurring among today's children, it is vital to use the lens of the Spectrum of Prevention as the posteriori theoretical framework in this multiple case study. The Spectrum of Prevention framework provides a methodology to synergize community strategies for dental caries, obesity, and asthma. Because today's health services need to be more effective and efficient, aligning community strategies for all three of these health conditions brings a more substantial impact on improving child health, yet the coordination of community-based prevention strategies for dental caries, obesity, and asthma are missing in research. Thus, to move to a more coordinated approach, this multiple case study investigates where effective strategies for childhood dental caries, obesity, and asthma intersect along the Spectrum of Prevention theoretical framework.

The Spectrum of Prevention is a framework that identifies six levels of prevention to help community health professionals move beyond the perception of prevention being only educational strategies. The six levels of the Spectrum of Prevention are proven to have a more significant effect when used together (Cohen & Swift, 1999). The six levels of the Spectrum of Prevention include “strengthening individual knowledge and skills,” “promoting community education,” “educating providers,” “fostering coalitions and networks,” “changing organizational practices,” and “influencing policy and legislation” (Cohen & Swift, 1999, pp. 204–206). “An activity at any level of the Spectrum of Prevention constitutes an intervention. However, using these initiatives in combination, the spectrum becomes a more transformative force for individual, community, and societal health” (Cohen & Swift, 1999, p. 204). Essentially, this theoretical framework provides the structure for interdisciplinary multi-variate primary prevention efforts.

Due to a gap in the research regarding collaborative efforts around community-based prevention strategies addressing dental caries, obesity, and asthma during childhood, there is a need to investigate the intersectionality of these three health conditions through a multi-variate theoretical framework. Using the Spectrum of Prevention as the posteriori theoretical framework “delineates a systems approach to prevention practice,” determining a coordinated methodology for the prevention of multiple, complex health conditions during childhood (Cohen & Swift, 1999, p. 206). The Spectrum of Prevention framework applies to many different health problems in communities across the world. The spectrum framework recognizes that communities are searching for effective prevention strategies to address complex health conditions, especially health conditions with influential social factors (Cohen & Swift, 1999); therefore, this framework is well-suited as the posteriori theoretical framework guiding this multiple case study.

Conclusively, strategies designed using the Spectrum of Prevention framework intend to increase and sustain community capacity to improve health. It is vital to begin researching both the barriers and commonalities among successful strategies to address childhood dental caries, obesity, and asthma synergistically and collaboratively. Then, the researcher determines where these strategies intersect on the Spectrum of Prevention to provide community health professionals concepts for developing a coordinated approach for these critical, chronic conditions during childhood—essentially filling a literature gap within the field of community health services.

This research study investigates the perspectives of parents, community-based program staff, medical and dental professionals, and community stakeholders where

community-focused prevention strategies involving childhood dental caries, obesity, and asthma align with the Spectrum of Prevention framework. Subsequently, the study highlights where strategies for these three health conditions intersect with one another on the spectrum to develop a prospectus for coordination. Existing research proves the Spectrum of Prevention framework works for injury prevention, violence prevention, and nutrition and fitness. Future studies from this research study could include a quantitative study looking solely at the effectiveness of the Spectrum of Prevention framework on childhood dental caries or asthma prevention strategies.

Research Design

Collaborative efforts for preventing dental caries, obesity, and asthma during childhood will most likely require system-level change and interdisciplinary coordinated efforts. To support the appeal for understanding complex, multi-disciplinary phenomena concerning social experiences, the researcher selects a multiple case study design to best allow for this type of exploration (Yin, 2014). A multiple case study design allows the researcher to obtain a well-rounded view of the circumstances within this research topic (Yin, 2018). Yin (1999) states that these conditions favor case studies over other methods for health services research: the problem involves “‘mega-systems’ of great complexity” linking multiple components in new ways, there are ever-changing rules within a health-system, and corporate affiliations and motivations can be difficult to track (p. 1209). The conditions that Yin (1999) speaks to for health services research are increasingly applicable for this multiple case study due to the complexity of childhood dental caries, obesity, and asthma.

The multi-faceted investigation within this multiple case study involves parents, community-based program staff, medical and dental health care professionals, and community stakeholders. This case study utilizes purposeful sampling techniques to ensure the participants in each case can describe a rich, unique perspective related to the central phenomenon of a collaborative approach to community-based prevention strategies for dental caries, obesity, and asthma episodes during childhood. From the participants selected through purposeful maximum variation sampling, the study collects data through semi-structured interviews, participant as observer observations, and a review of documents—including meeting minutes, program measures, and strategic plans.

Understanding data across each case—as well as through the lens of dental caries, obesity, and asthma—is augmented by “early identification of situations” of apparent issues (Stake, 1995, p. 29). Due to the unique perspective of each case within this study, gaining an understanding within each case is vital before data examination across each case. Ultimately, building upon the data analysis leads to the final synthesis of data and the purpose of this study, examining the commonalities among dental caries, obesity, and asthma.

Definition of Key Terms

Below are definitions of terminology used in this research study that support the use of these terms in the field of community health.

Asthma: Asthma is a common disease of childhood. It affects a child’s bronchial tubes in their lungs and causes difficulty breathing, wheezing, chest tightness, and coughing.

Exposing a child to specific environmental triggers can bring about symptoms,

causing an asthma attack. People have different asthma triggers. More common asthma triggers include “tobacco smoke, dust mites, outdoor air pollution, cockroach allergen, pets, mold, smoke from burning wood, grass, and infections like flu” (CDC, 2018-b, What Causes an Asthma Attack? section, para. 1). Asthma attacks are prevented through routine medication and behavioral choices to learn and avoid asthma triggers.

Community-based strategies: Community-based strategies refer to community-level interventions. These strategies can involve primary or secondary prevention efforts involving a multi-disciplinary approach to improve health at the individual or community level. Wandersman and Florin (2003) define community-level interventions as “multicomponent interventions that generally combine individual and environmental change strategies across multiple settings to prevent dysfunction and promote well-being among population groups in a defined local community.”

Dental caries: Dental caries are also known as harmful cavities within teeth. Another term to describe when a tooth has a cavity is tooth decay. The CDC defines dental caries as one of the most common chronic diseases during childhood, and when left untreated, dental caries can lead to pain and infection of the teeth, creating problems for children with eating, talking, learning, and playing (CDC, 2019). Dental caries are preventable and caused by behavioral risk factors such as poor dental hygiene, lack of routine professional dental care, and poor nutrition—a diet of high sugar and processed foods.

Dental home: According to the American Academy of Pediatric Dentistry, a dental home is a continuous relationship between the dentist and the patient that encompasses all

aspects of oral health care. The delivery of oral health care in the dental home is comprehensive, continuously accessible, coordinated, and family centered. The dental home for a child should be established by the child's first birthday to begin and support a lifetime of good oral health.

Disease prevention: The World Health Organization's definition of disease prevention is most fitting in the research study because of the delineation of disease prevention being primary or secondary. Overall, disease prevention is either a community-based or individually based intervention focusing on primary or secondary prevention to prevent or minimize the early onset of a health condition or the condition's associated risk factors (WHO, n.d.-b).

Medical home: The American Academy of Pediatrics supports that a medical home is not a building or a place; instead, it is an approach to providing continuous, comprehensive, and family-centered health care. The medical home should be accessible, coordinated, compassionate, and culturally competent.

Obesity: The measurement of obesity during childhood typically uses the body mass index (BMI) calculation. The BMI calculation divides the child's weight in kilograms by their height in meters squared. The growth charts used by the CDC gather indicators for children and teenagers for growth patterns to determine measurement categories for a healthy weight, overweight, and obese (CDC, 2018-a). A child can become overweight or obese through weight gain. Behavioral or genetic factors typically cause weight gain.

Pediatric: In the context of health services, “pediatric” refers to children ages birth–18 years of age. It is often synonymously used with the term childhood. *Childhood* also relates to the years of the life of an individual from birth–18 years of age.

Poverty status: Poverty status and low-income may be used synonymously in this research study. Poverty status measures “family income, family size, and the number of children in the family; and, for families with two or fewer adults, it depends on the age of the adults in the family” (Dye et al., 2012). Many families included in this research study are at or below the federal poverty level, but the study refers to them as low-income families.

Primary prevention: Preventing a health condition from initiating.

Risk factor: The World Health Organization defines a risk factor as a characteristic, quality, or exposure to something that increases an individual’s risk for developing a health condition or disease (World Health Organization [WHO], n.d.-c). Risk factors are different among individuals and for different types of health conditions.

Secondary prevention: Early detection of a health condition to improve health outcomes, potentially keeping the condition from worsening.

Social determinants of health: Social determinants of health are “conditions in the social, physical, and economic environment in which people are born, live, work, and age”; correspondingly, these social determinants “consist of policies, programs, institutions, power and money distribution, and other aspects of the social structure, including government and private sectors, as well as community factors” (United States Department of Health and Human Services, 2010, Societal Determinants of Health section, para. 1).

Conclusion

Dental caries, obesity, and asthma are common, chronic conditions during childhood. Each of these health conditions is widely prevalent among children in the United States. Not only are these three chronic conditions common among children, but they can be comorbidities of one another and share many of the same risk factors, particularly those risk factors influenced by the social determinants of health. Research shows that dental caries, obesity, and asthma episodes for children are preventable through primary prevention strategies. However, successful community health strategies for the prevention of these three health conditions occur through a more siloed approach. Given the relationship between these three health conditions coupled with a lack of research on *coordinated* community-based prevention strategies, there is a missed opportunity to address dental caries, obesity, and asthma more collaboratively with children and families.

Due to the complexity of childhood dental caries, obesity, and asthma, the need for multi-variate primary prevention efforts exists. Solely providing community education strategies through a siloed approach are not enough for the prevention of these three health conditions. A multiple case study investigation of multi-level strategies using the Spectrum of Prevention as the theoretical framework to determine where strategies for dental caries, obesity, and asthma align, will help coordinate community health improvement efforts. The subsequent literature review supports the need for this multiple case study and solidifies the importance of addressing dental caries, obesity, and asthma more collaboratively to strengthen the impact of community-based prevention strategies—ultimately, improving the health of children. The following chapter will review research on the prevalence of dental caries, obesity, and asthma among children in

the United States, the connection of these three health conditions through comorbidity studies and overlapping risk factors—especially social risk factors, the effectiveness of prevention efforts, and the challenges to addressing dental caries, obesity, and asthma collaboratively.

CHAPTER TWO

Literature Review

Introduction

The prevalence of dental caries, obesity, and asthma during childhood in the United States is extensive, and each of these health conditions brings about similar health disparities. Oberg et al. (2016) note the following regarding health disparities in childhood:

Pediatric health disparities are defined as differences in adverse health outcomes for specific health indicators that exist across sub-groups of the population. These disparities in health outcomes are frequently driven by several social determinants that include race/ethnicity and income, but also by other factors such as access to care, housing instability, food insecurity, geography, transportation, and the built environment. (p. 291)

The role of race, ethnicity, and income levels in the prevalence of dental caries, obesity, and asthma in the United States is discussed in the following section, while commonalities among factors such as access to care, food insecurity, and the built environment are discussed in more detail in the part of this literature review presenting information on the risk factors related to the social determinants of health.

Understanding the prevalence of dental caries, obesity, and asthma during childhood, recognizing the barriers to the prevention of these three health conditions, and communicating the urgency and effectiveness of community-based prevention efforts—begins to lay the foundation for the need to address these health conditions more collaboratively. Due to traditional research methodologies examining the prevalence of childhood dental caries, obesity, and asthma individually, the prevalence of each health

condition is discussed separately in the following section. Then, the barriers to the prevention of these three health conditions are acknowledged, closing this literature with the necessity of collaborative prevention efforts, despite those barriers. The conclusion of this literature review includes how imperative the selected theoretical framework—Spectrum of Prevention—is for this study, and clearly states how the research topics in this review align with the framework.

Prevalence of Dental Caries, Obesity, or Asthma During Childhood in the United States

Known as a “silent epidemic,” dental caries during childhood present apparent disparities among children from families of a racial minority or low income (United States Department of Health and Human Services, 2000). Key findings from the 2011–2012 National Health and Nutrition Examination Survey (NHANES) found that untreated dental caries in primary teeth in children 2–8 years old were twice as high for Hispanic and Black children, as compared with White children (Dye et al., 2015). In children ages 6–11, nearly one-third of Hispanic children experience dental caries in permanent teeth compared to White and Asian children at 18% (Dye et al., 2015). In comparing adolescents, Black teenagers had a higher prevalence of untreated dental caries (21%) compared to White (13%) and Asian (12%) teenagers (Dye et al., 2015). Regarding the disparity of low-income level, Dye et al. (2017) found in families with incomes less than 100% of the federal poverty level, children and adolescents are more likely to experience dental caries than their counterparts in families with incomes above or equal to 200% of the federal poverty level (p. 560). In looking at untreated dental caries, children in families of poverty have twice the prevalence as compared to children in families with incomes above the federal poverty level (Dye et al., 2017).

Apparent health disparities exist for children and adolescents in racial minority groups and those living in low-income families regarding the prevalence of dental caries. Knowing the type of disparities that exist with dental caries provides an understanding of potential overlap with obesity and asthma health disparities during childhood. Determining this overlap aids in solidifying the need to coordinate community-based prevention strategies for all three health conditions—dental caries, obesity, and asthma. Reviewing these overlapping disparities through the lens of the Spectrum of Prevention theoretical framework supports the need for this multiple case study—as the theoretical structure provides synergistic levels of strategies designed for complex health conditions (Cohen & Swift, 1999). The following paragraph reviews childhood obesity prevalence. Not only do millions of children in the United States suffer from obesity, but prevalence inequities exist for children among racial minority populations, along with children from low-income families (Hales et al., 2017; Ogden et al., 2018). The 2015–2016 NHANES looks at the prevalence of obesity in the United States among adults and youth but also researches differences among obesity prevalence between race and ethnicity. In this survey for the obesity indicator, the term “youth” references children ages 2–19 years of age. Findings from the 2015–2016 NHANES concludes that the prevalence of obesity in the United States is higher among Black (22%) and Hispanic (26%) youth compared to White (14%) and Asian (11%) youth (Hales et al., 2017). The presence of obesity in Black youth girls is one in four (25%), as opposed to White youth girls being only ten percent (Hales et al., 2017). The pattern among youth boys shows nearly one-third (28%) of Hispanic youth boys are obese, and 19% of Black youth boys (Hales et al., 2017). In the prevalence of obesity among low-income children, the CDC analyzes 2011–2014 data

from NHANES by three groups of household income levels, less than or equal to 130%, 130%–350%, and greater than 350% of the federal poverty level (Ogden et al., 2018). The data for 2011–2014 shows that the prevalence of obesity among youth ages 2–17 is lower in the highest income group (11%) as compared to the lower-income groups of 20% and 19% respectively, showing that there is a higher prevalence of obesity among youth from lower-income families. Figure 2.1 shows that overall, there is an increasing trend in obesity prevalence for all youth in the United States (reproduced with permission from Hales et al., 2017, p. 5).

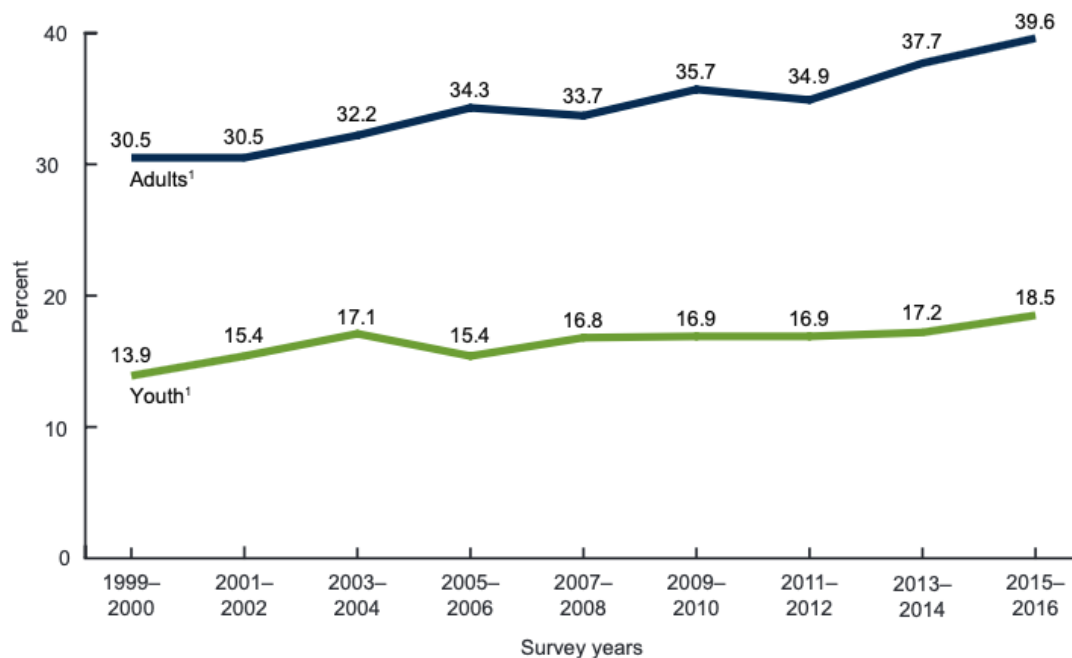


Figure 2.1. Trends in obesity prevalence among youth aged 2–19 years in the United States, 1999–2000 through 2015–2016.

Therefore, not only do health disparities for obesity prevalence exist among marginalized groups, but the overall prevalence of obesity in the United States is increasing. Obesity during childhood most often carries over into adulthood (St-Onge et

al., 2003). Obesity, as an adult, can have serious health consequences, including heart disease, diabetes, and stroke, which can even lead to death (St-Onge et al., 2003).

Thankfully, obesity is preventable; prevention is the key to keeping children healthy throughout their lifetime.

Understanding the health disparities of childhood obesity is critical to determine if overlap exists with dental caries and asthma disparities. Thus far, in this literature review, it reveals an overlap between the health disparities of dental caries and obesity, with children from families of a racial minority and low income. Knowing this overlap between dental caries and obesity can guide community-based strategies to reach the most vulnerable populations with multi-variate prevention efforts, such as strategies aligning with the Spectrum of Prevention theoretical framework. Both dental caries and obesity are affecting many children in the United States. Now more than ever, community health professionals should begin to address the health inequities of childhood dental caries and obesity with coordinated community-based prevention strategies. The next paragraph reviews the prevalence of childhood asthma.

The Centers for Disease Control and Prevention report that asthma prevalence in the United States for children continues to remain at “historically high-levels” following dramatic increases during the 1980s and late 1990s (Akinbami, 2006, p. 1). Black and Puerto Rican children have higher rates of asthma as compared to White children (Akinbami, 2006). In this example, Akinbami (2006) groups Black and Puerto Rican children and compares their asthma rates to White children; reporting a comparison of race and ethnicity should be more balanced, such as using “African American” in place of “Black.” However, substituting a more balanced term may misrepresent the results of

Akinbami’s study; therefore, this literature review reports the statistic as Black and Puerto Rican. Health care outcomes for asthma, such as hospitalizations, emergency department visits, and death are higher among Black children. Figure 2.2 shows that the disparity is increasing for asthma-related deaths between Black and White children (reproduced with permission from Akinbami, 2006, p. 9).

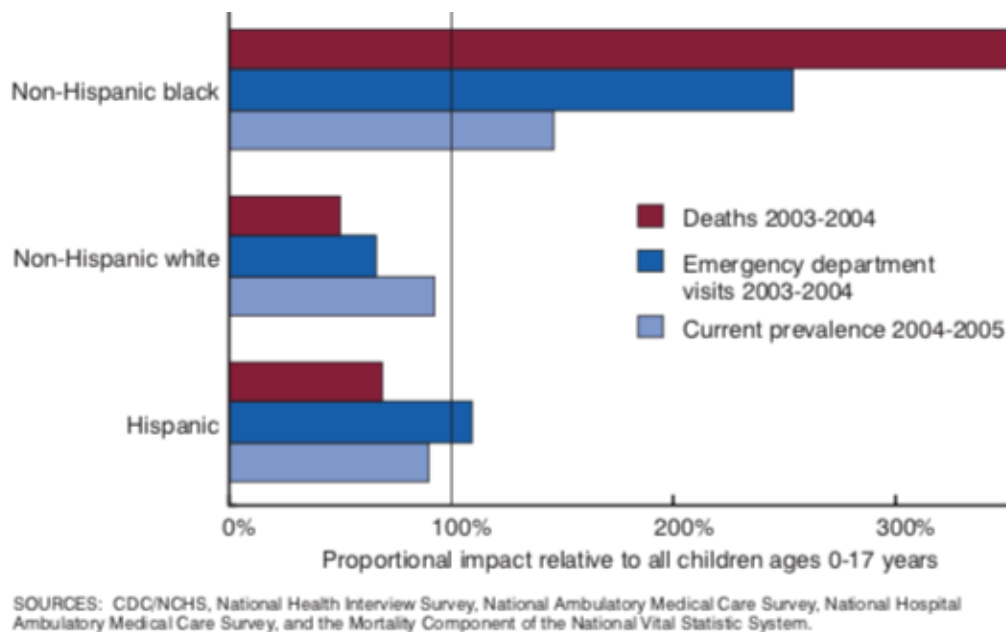


Figure 2.2. The proportions of asthma prevalence, emergency department visits, and asthma-related deaths among children 0–17 years of age by racial/ethnic groups.

When assessing asthma prevalence among low-income children, Akinbami et al. (2016) look at poverty status to determine categories of “poor” being less than 100% of the federal poverty level, “near poor” being 100–200% of the federal poverty level, and “non-poor” being greater than or equal to 200% of the federal poverty level. There is a significant increasing linear trend among the prevalence of asthma in children of poverty status, less than 100% of the federal poverty level (Akinbami et al., 2016). Many researchers, community health professionals, and health care providers are often

frustrated because the sole, identifying cause of asthma is still unknown; however, health professionals do know that exposing a child to their triggers can bring about asthma episodes or attacks (CDC, 2018-b). Thus, prevention efforts can make a difference in avoiding or eliminating asthma triggers from any aspect of a child's day to day life. "Asthma places a huge burden on affected children and their families: asthma may limit a child's ability to play, learn, and sleep; necessitates potentially complex and expensive interventions; and results in both direct medical costs and indirect costs" (Akinbami, 2006, p. 2). When asthma symptoms become too severe for children, they must seek emergency medical care or hospital admission to reduce lung inflammation and restore breathing (Masoli et al., 2004). Prevention efforts to reduce asthma triggers and prevent asthma episodes are essential in improving the health of children with asthma, as well as lowering healthcare-associated costs with asthma treatments and procedures after the time for preventing an asthma episode from occurring has elapsed. Examining the prevalence of childhood asthma clarifies that, just as with dental caries and obesity, asthma affects many children in the United States and disproportionately affects children of a racial minority or low income.

Barriers to the Prevention of Dental Caries, Obesity, or Asthma During Childhood

Although dental caries, obesity, and asthma episodes are important health conditions affecting U.S. children that community health professionals should address with prevention strategies, it is careless not to speak to some of the barriers that each of these health conditions brings to prevention efforts. Dental caries, obesity, and asthma are multi-factorial health conditions that most often require children and their parents to modify their behaviors to make healthier choices. It takes effort on behalf of families,

service providers, health care professionals, and communities to prevent one or more of these conditions or, at the very least, eliminate a risk factor, which results in a great deal of coordination. Due to this coordination among families and multi-disciplinary service providers, multi-level community-based prevention strategies—such as those that align with the Spectrum of Prevention—are well-suited to address childhood dental caries, obesity, and asthma collaboratively. Exploration of other barriers related to dental caries, obesity, and asthma occur in the following paragraphs of this section.

As the awareness of the importance of dental care has improved over the past several years, there are still substantial barriers to preventing dental caries around access to dental care. There is a persistent lack of access to dental care for marginalized children (Dye et al., 2012; United States Department of Health and Human Services, 2000). Even with some improvement in the awareness of dental care, research shows that parents are still unaware of when to begin taking their child to the dentist and begin doing it much later than the recommended age by the American Academy of Pediatrics, which is before the child's first birthday (American Academy of Pediatrics, 2013). Parents may be unaware of the connection of dental health to general health and the impact an individual's dental health has on their overall health and well-being, particularly for a developing child (Dye et al., 2012; United States Department of Health and Human Services, 2000). Education can address a lack of parental awareness, but much of the time, cultural beliefs have a greater impact on a parent's behavioral choices for their child's dental health. The parent's fears of dental care that they may have faced as a child or adult also plays a vital role in parental behavior choices for their child.

Helping families overcome barriers to the prevention of childhood dental caries most often requires careful strategy and thought. If community health professionals are working to address these barriers for children and families regarding dental caries, they should extend the approach to include addressing any similar barriers for childhood obesity and asthma, as well. This multiple case study examines where barriers for dental caries, obesity, and asthma align to guide community health professionals in strategizing how to plan for community-based prevention strategies that address all three health conditions.

As seen with dental caries, there is also a lack of access to care for children suffering from asthma episodes (United States Department of Health and Human Services, 2014). Because of an increase in preventable hospitalizations and preventable emergency room visits with asthma, there is a lack of awareness among parents but also a lack of access to care (Hasegawa et al., 2015; Murray et al., 2017; United States Department of Health and Human Services, 2014). If parents can access their child's primary care physician or coordinate doctor appointments more efficiently for their asthmatic child and obtain regular asthma maintenance medication, there might not be as many preventable hospitalizations and emergency room visits for asthma episodes. Access to care is a substantial barrier seen with many health conditions. If community health professionals are tackling the access to care barriers for one health condition, discussions for innovative solutions to improve access to care should include multiple health conditions, particularly related health conditions such as dental caries, obesity, and asthma.

Family dynamics play an essential role in the prevention of dental caries, obesity, and asthma, but most notably with obesity. Mothers' stress is associated with higher rates of obesity among children (Tate et al., 2015). Increasing family stress due to conflict, disruption, and the financial strain shows to increase obesity prevalence among female children, while there is a higher prevalence of obesity among male children when exposing them to risky maternal behaviors (Hernandez & Pressler, 2015). Family dynamics are challenging to address in prevention programming, particularly dynamics of epic proportions, such as parental stress, family conflict, and financial strain. However, if community-based prevention strategies work to improve parental stress, family conflict, and financial tension with childhood obesity in mind, community health professionals should acknowledge how improving these barriers might also prevent childhood dental caries or asthma episodes. Investigating the overlap of barriers between dental caries, obesity, and asthma is crucial to determine a more coordinated approach with multi-variate, community-based prevention strategies—such as those outlined by the Spectrum of Prevention theoretical framework.

Mentioned in this section were only a few barriers to the prevention of dental caries, obesity, and asthma. Solving the access to care problem is not an easy task, but community health professionals can make strides in making access easier for families. Considering family dynamics in prevention strategies takes extra thought, planning, and effort, but it can be accounted for or eliminated. Developing community-based strategies to target education and improve program services, supportive of all languages and racial groups, is something to accomplish no matter what health condition an approach is looking to prevent. If community prevention strategies can manage care coordination or

provide social services, such as transportation to dental appointments, picking up medication for families, or assisting with Medicaid applications for one of the three health conditions mentioned in this study, a greater impact is achievable with eliminating these same barriers for all three health conditions—dental caries, obesity, and asthma.

Comorbidities and Overlapping Risk Factors

Not only are dental caries, obesity, and asthma complex, chronic conditions widely prevalent among children in the United States, with health disparities existing among marginalized children, but also these health conditions relate through overlapping risk factors (Chi et al., 2017; Di Genova et al., 2018; Marshall et al., 2007; Spiegel & Palmer, 2012). Some research also suggests they are comorbidities of one another, meaning if one of these conditions is present in a child, it is likely that the child also has one of the other two conditions (Ahmadizar et al., 2016; Alavaikko et al., 2011; Black et al., 2012; Costacurta et al., 2014; Garcia et al., 2017; Maupome et al., 2010; Pulgaron, 2012). Before explaining the comorbidity and risk-factor relationship, it is essential to acknowledge that dental caries, obesity, and asthma are each a multi-factorial health condition. Although they have risk factors that overlap, they also each have non-overlapping risk factors that are equally important. The purpose of explaining the relationship between these three health conditions is to lay the foundation for constructing an alternative approach for addressing these conditions more collaboratively.

Dental caries and obesity share a relationship most commonly through the role of a child's diet (Marshall et al., 2007; Spiegel & Palmer, 2012). "Evolving changes in dietary habits seem to play an integral role in both childhood obesity and dental caries" (Spiegel & Palmer, 2012, p. 60). Factors associated with this dietary risk of dental caries

and obesity include increased food consumption away from home, increased snacking on non-nutritious foods, increased use of added sugars—especially sugar-sweetened beverages, and inadequate consumption of nutritious foods (Spiegel & Palmer, 2012). The main dietary risk factor for childhood dental caries is the consumption of simple sugars in food and beverage intake, whether this sugar naturally occurs in the food or added (Palmer et al., 2010). The consumption of simple sugars also contributes to weight gain. Most often, sugar-sweetened beverages, such as sodas, fruit juice, even pure fruit juice, contain sugar that can lead to dental caries and obesity (O'Connor et al., 2006; Tahmassebi et al., 2006). Most importantly, studies indicate a significant relationship between childhood dental caries and obesity (Bailleul-Forestier et al., 2007; Hooley et al., 2012; Willershausen et al., 2007). Multi-level strategies that align with the Spectrum of Prevention theoretical framework could address shared risk factors between dental caries and obesity. One strategy example aligning with the level of the spectrum—changing organizational practices—might encourage schools or community centers to eliminate the provision of sugar-sweetened beverages to children.

Many studies report an increased risk of asthma associated with obesity during childhood (Ahmad et al., 2009; Brenner et al., 2001; Gilliland et al., 2003; Reilly, 2005; Visness et al., 2010). A cross-sectional study from Rodriguez et al. (2002) uses data from “the Third National Health and Nutrition Examination Survey 1988–1994 showing that one of the highest risk groups for developing asthma is children over the age of ten with a body mass index greater than or equal to the 85th percentile” (Mohan et al., 2014, p. 1532). According to the CDC, a body mass index greater than or equal to the 85th percentile classifies the child as at least overweight, potentially obese. A crucial

modifiable risk factor of asthma is obesity. Weight reduction not only eliminates the presence of obesity in a child but may also improve the quality of life in an asthmatic child by improving control of asthma symptoms and improving lung function (Di Genova et al., 2018). Because obesity and asthma are so closely related, asthma can be a side effect of obesity. The alignment of prevention strategies for childhood obesity and asthma could positively impact the prevalence of both health conditions, such as promoting community education and synchronizing key messages, which is a strategic level of the Spectrum of Prevention. Thus, determining where barriers and strategies intersect on the Spectrum of Prevention through this multiple case study provides better insight for community health professionals to align their efforts.

Some inconsistencies in the research report the relationship between dental caries and asthma; however, there is enough evidence to prove there is an association between these two conditions, particularly substantiating the need for children with asthma to maintain regular dental examinations and to incorporate vigilant home dental care practices (Alavaikko et al., 2011; Maupome et al., 2010; Shulman et al., 2001). Research shows the medications taken by children with asthma may lead to an increased risk of dental caries due to changes in saliva composition and salivary flow, as saliva plays a significant role in the development of dental caries (Alavaikko et al., 2011; Reddy et al., 2003; Shashikiran et al., 2007). A cross-sectional study of 250 children ages 3–18 years of age divided based on asthma severity and type of asthma medication use shows that the prevalence of dental caries increases with asthma severity (Reddy et al., 2003). Coordinating community-based prevention strategies for dental caries and asthma, particularly around educating providers, which is a strategic level of the Spectrum of

Prevention, may be impactful for families with children suffering from dental caries and asthma. Unless further investigation through this multiple case study occurs, knowing where effective strategies for dental caries and asthma prevention intersect, coordinated efforts may be more challenging to employ.

Because of the relationship between dental caries, obesity, and asthma—prevention strategies used to address one of these health conditions should involve the coordination of efforts to address all three health conditions. Many of the overlapping risk factors present for dental caries, obesity, and asthma are associated with health behaviors. Individual, societal, environmental, and political aspects may influence health behaviors. Community-based prevention strategies play an essential role in improving the health behaviors of children and families when these strategies address multiple levels of prevention, as provided through the theoretical framework, the Spectrum of Prevention (Cohen & Swift, 1999). If multiple-level strategies are incorporated for the prevention of one of the three health conditions—dental caries, obesity, or asthma—ignoring their interconnectedness when implementing solutions is irresponsible of community health professionals working to improve the health of children.

Further examining the relationship between dental caries, obesity, and asthma during childhood deepens throughout the discussion of their overlapping social risk factors in the next section. Understanding the social risk factors for these three health conditions is imperative to developing strategic prevention strategies—as risk factors relating to the social determinants of health are profoundly influenced by policies, systems, and environments (Magnan, 2017). The Spectrum of Prevention theoretical

framework provides a structure that addresses policies, systems, and environments within community-based prevention strategies.

Risk Factors Relating to the Social Determinants of Health

Over the past three decades, studies on the impact of the social determinants of health have been at the forefront of health services research. The World Health Organization solidifies the idea of social determinants of health as being, “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life” (WHO, n.d.-a). Social determinants such as housing conditions, neighborhoods, access to fresh foods, and access to health services, among others, all have a direct connection to the choices that individuals make regarding their health. Moreover, the American Academy of Pediatric Dentistry states that the social determinants that affect a parent’s oral health outcomes similarly affect their children (American Academy of Pediatrics, 2016). The social determinants that affect a parent of any health condition, also affect their child. It is important to note that social determinants are shared, not only among family members for health conditions, but also those social determinants are potentially shared between health conditions—such as between dental caries, obesity, and asthma.

Not only do dental caries, obesity, and asthma have social determinants that significantly impact the prevalence of these health conditions during childhood, they also share some of the same social determinants. Exploration of the connection of the social determinants between dental caries, obesity, and asthma continues in the following paragraph. This section concludes by highlighting the need for collaboration in addressing these overlapping determinants within community health strategies.

One example of a social determinant of health that can increase the likelihood of childhood dental caries is a lack of food security within the household (Chi et al., 2014). Although the Chi et al. (2014) study did not imply causation, nor test the severity of dental caries found in children, the study found a significant relationship between food insecurity and childhood dental caries. The potential reasons for this could be that parents may need to purchase less expensive food that lasts longer, such as sugar-sweetened beverages like powdered fruit drinks or punch (Chi et al., 2014). Higher-processed foods may have a longer shelf-life or give more in quantity, but also contain a higher sugar content; a diet higher in sugar leads to more tooth decay (United States Department of Health and Human Services, 2000). Other reasons for the relationship between food insecurity and the presence of dental caries could be that the family lives in a food desert, where healthier food options are rare or more expensive, or perhaps the food insecurity is an indicator for other inequities, such as low social capital or social-economic status (Chi et al., 2014). Research also shows children in families with lower-income levels or parents with lower educational attainment have a higher risk of poor dental health and less utilization of dental care services (Yang et al., 2016).

Overlap with social determinants exists between dental caries, obesity, and asthma during childhood. Similarly to dental caries, food insecurity is also a social determinant of childhood obesity, along with factors such as low family income, lower parent education, and an increase in the number of adults living in the household (Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014). In reviewing social determinants of asthma, once again the low-socioeconomic status of the family and lack of neighborhood capital are two determinants that bubble to the top

for this health condition, just as with dental caries and obesity (Beck et al., 2014; Williams et al., 2009).

The prevalence of asthma is higher, with an increase in urbanization due to infrastructure and lower socioeconomic lifestyle factors. The results of these lower socioeconomic lifestyle factors that affect asthma include air pollution, more impoverished living conditions, presence of mold, rodents, cockroaches, and the feces of those cockroaches in the home (Beasley et al., 2015). Children living in poverty experience increased environmental exposures, consume more polluted air and water, and face increased environmental respiratory exposures from poor ambient air quality (Kelley & Kearney, 2018).

The social determinants of health for dental caries, obesity, and asthma are all closely related to social capital, neighborhood capital, access to health services, and lower-income levels of the family—primarily poverty. Directly connecting community-based strategies addressing the social determinants of health within primary and secondary prevention efforts is crucial for improving health outcomes of dental caries, obesity, and asthma. While there is no quick and easy answer for solving the issue of family poverty, if community strategies are framing prevention efforts to account for commonly shared social determinants for one of these three health conditions—dental caries, obesity, or asthma—it is more efficient to align program strategies and expand efforts to include these same strategies for addressing the social determinants of health for all three of these conditions. Eventually, all health services professionals must face reality that “the elimination of health disparities among children will require an effort to achieve health equity”; this “focus on health equity may attenuate the impact of the most

salient social determinants, including racism” (Oberg et al., 2016, p. 291). Using the Spectrum of Prevention as the theoretical framework within this multiple case study moves strategies beyond education efforts and focuses community-based prevention strategies on addressing risk factors for dental caries, obesity, and asthma that better relate to the social determinants of health.

The next section demonstrates that currently, across the United States, there are effective community-based prevention strategies that *individually* address dental caries, obesity, and asthma. Research shows that thankfully, community-based prevention strategies can positively impact these three health conditions during childhood (American Academy of Pediatric Dentistry, 2013; Brock et al., 2019; Butterfoss et al., 1993; Collins et al., 2016; Crawford et al., 2013; Greenburg et al., 2008; Haire-Joshu et al., 2018; Hoppe et al., 2013; Ismail, 1998; Jhun et al., 2016; Liptzin et al., 2016; Mitchell et al., 2012; Murray et al., 2017; Rabito et al., 2017; Turyk et al., 2013; United States Department of Health and Human Services, 2000). However, the problem is that many current strategies address these conditions through a single-focused lens. Missing from the research are effective community-based prevention strategies that collaboratively address childhood dental caries, obesity, and asthma. Due to the relationship of these three health conditions previously established within this literature review, there is a need for this multiple case study to investigate the overlap of current, effective community-based prevention strategies to determine where and how these effective strategies align to develop a coordinated approach. The section below supports that although dental caries, obesity, and asthma are currently addressed individually, community-based strategies are useful for the prevention of these three health conditions.

Effectiveness of Community Strategies with Children and Parents for the Prevention of Dental Caries, Obesity, or Asthma

Although dental caries, obesity, and asthma are complex health conditions during childhood, each is preventable with a successful implementation of strategies at the community level utilizing collaborative effort among a broad range of organizations. Because dental caries, obesity, and asthma are preventable with successful community strategies, the establishment of the effectiveness of prevention helps support the need for this research study to investigate the alignment of these strategies to drive a more coordinated approach by community health professionals. Not only is it important for this case study to examine the alignment of effective community-based prevention strategies between dental caries, obesity, and asthma, but this study will further determine where this alignment intersects on the Spectrum of Prevention. Using the Spectrum of Prevention as the posteriori theoretical framework in this multiple case study “delineates a systems approach to prevention practice,” which will determine a coordinated methodology for the prevention of these three complex health conditions during childhood—dental caries, obesity, and asthma (Cohen & Swift, 1999, p. 206). Reflecting on how current research and practice independently address dental caries, obesity, and asthma, the following three paragraphs in this section discuss the effectiveness of selected community strategies with children and parents for the prevention of these three health conditions independent of one another.

There are several effective strategies for the prevention of childhood dental caries; however, most notable is the strong support for a child to experience these strategies early in life. The earlier prevention strategies begin in a child’s life, the more likely it is to prevent dental caries (Collins et al., 2016; Ismail, 1998; United States Department of

Health and Human Services, 2000). For a child to experience some of the effective strategies such as dental sealants, fluoride varnish, and regular dental examinations, children must be exposed to a dental or medical home or perhaps participate in a school-based dental program. Exposure to dental services might be available for some children, but if a family is unable to access care or is not able to participate in a school or community dental program, the child will not benefit from service-based community strategies.

According to the American Academy of Pediatric Dentistry, the role of case management to prevent childhood dental caries is a useful community-based strategy. The core of case management activities recognizes that families of the 21st century often have complex family situations. Case management can support families in finding and maintaining a dental home and overcoming barriers to accessing the dental home regularly. Productive activities of case management for the prevention of dental caries include “motivational interviewing, health literacy activities, care coordination, community outreach, and education, and appointment reminder systems” (American Academy of Pediatric Dentistry, 2013). A study by Greenberg et al. (2008) looks at the effectiveness of dental case management to improve access to care regarding beneficiaries of Medicaid for dental care services. The types of tasks the dental case manager provides are the recruitment of dentists to accept Medicaid, arranges training in billing procedures for dental staff, provides education to Medicaid beneficiaries about keeping dental appointments, helps Medicaid beneficiaries find transportation to their dental appointments, and identifies other potential barriers to care. The dental case management role is a community strategy that bridges the gap between the lack of access

to dental care for Medicaid beneficiaries and dental service providers. The study finds that providing intensive support services by a case manager between Medicaid beneficiaries and dentists, the number of dentists accepting new Medicaid dental patients increased from two to 28 and the percentage of Medicaid beneficiaries receiving access to dental care services increased from 9% to 41% (Greenburg et al., 2008).

Many community strategies for the prevention of childhood dental caries involve increasing parental knowledge of children's oral health. While improving individual knowledge regarding dental caries prevention may have some effect on improving children's dental health, evidence supports that increased knowledge alone does not sustain improvement in the prevention of dental caries (Kay & Locker, 1998). Therefore, there is a need to turn to theory-driven interventions that ground effective strategies in frameworks of oral health determinants, such as through the theoretical framework, the Spectrum of Prevention. Theory helps guide effective community strategies to include the multi-dimensional factors that affect childhood dental caries, such as family culture, parent education level, a diet including food insecurity, social capital, and access to care. Building community strategies to prevent childhood dental caries around the Spectrum of Prevention Framework and then aligning those strategies with obesity and asthma prevention efforts will help provide a more well-rounded view of how to include interdisciplinary approaches that can synergistically impact childhood dental caries.

Tackling the childhood obesity epidemic through community strategies takes a concerted effort among the broader community. More studies show that to achieve and sustain individual behavior change in the realm of prevention, especially for children, it involves the child's whole environment—home, school, and community (Crawford et al.,

2013). When thinking through the child's complete environment—system and institutional change play an essential role in impacting childhood obesity. One compelling strategy example of system-level change for improving childhood obesity is influencing policy and legislation, which is also a strategy level of the Spectrum of Prevention theoretical framework (Crawford et al., 2013; Larson et al., 2009; Lovasi et al., 2009; Zenk et al., 2009). Policy change is a critical community strategy for obesity prevention by supporting healthy eating patterns of families. Examples of policy change to improve obesity include neighborhood zoning that limits fast-food restaurants, requiring restaurants to provide healthier menu options for children, locating or re-locating supermarkets in food deserts, and establishing community gardens (Crawford et al., 2013; Larson et al., 2009; Lovasi et al., 2009; Zenk et al., 2009). Community coalitions are another effective strategy in addressing childhood obesity by building community partnerships to address obesity prevention strategies through interdisciplinary action (Brock et al., 2019; Butterfoss et al., 1993; Truiett-Theodorson et al., 2015). Community coalitions can extend the reach of professionals working to improve a health condition with a centralized strategy and impact (Butterfoss et al., 1993; Crawford et al., 2013). Fostering coalitions and networks is also a strategy level of the Spectrum of Prevention theoretical framework.

Home visiting programs are also useful in childhood obesity prevention efforts (Haire-Joshu et al., 2018; Martin et al., 2016; National Research Council, 2019). The home visiting organization, Parents as Teachers, operates locally in areas across the country and includes national research to promote early child development and health by engaging families. A recent Parents as Teachers study by Haire-Joshu et al. (2018)

consists of a comparison of curriculum among families during home visits. The study looks at overweight or obese mothers of preschool children who receive recommendations for healthy eating and physically active lifestyle behaviors in their curriculum versus families receiving regular curriculum, not including this specific healthy eating and physically active lifestyle behavior information. The study shows that families receiving the healthy eating and physical activity curriculum show more considerable improvement in behavior choices preventing childhood obesity, such as reducing added sugar consumption, reducing sugar-sweetened beverage consumption, and increasing physical activity (Haire-Joshu et al., 2018). This Haire-Joshu et al. (2018) study is critical because it shows the value of health information delivered cumulatively and reinforced over time by a home visiting program.

Many different community strategies are effective in childhood obesity prevention efforts. An investigation, through this multiple case study, of where different obesity prevention strategies intersect with dental caries and asthma prevention strategies on the Spectrum of Prevention potentially brings a more substantial impact to improving a child's health. Given that research for collaborative community-based prevention strategies for dental caries, obesity, and asthma is missing, this multiple case study will provide community health professionals the opportunity to review multi-level strategies for three multi-variate health conditions to guide a more coordinated approach.

As the initial cause of asthma is relatively unknown, the prevention of the development of asthma itself is challenging; however, asthma episodes or attacks are preventable through community-based prevention strategies. Asthma episodes are preventable by reducing or eliminating a child's asthma triggers. Many asthma triggers

are associated with the child's environment—both at home and at school. Successful community-based prevention strategies focusing on a child's home environment include removing dust, pest droppings, pet dander, tobacco smoke, mold, and smoke from wood-burning appliances. However, simply removing these home environmental triggers is not easy for all families, especially families of low income. Home environmental assessment and intervention programs that assist families in removing their child's asthma triggers can provide successful outcomes such as a reduction in the prevalence of the triggers in the home, decreased urgent care or emergency room visits for asthma episodes, and fewer asthma symptoms (Hoppe et al., 2013; Mitchell et al., 2012; Murray et al., 2017; Rabito et al., 2017; Turyk et al., 2013).

Some home visiting and remediation programs for the prevention of childhood asthma episodes include additional strategies such as family education or case management by community health workers or nurses. The Community Asthma Initiative is a home visiting program at Boston Children's Hospital that works with families of children with asthma to provide education, trigger remediation and removal, and case management to address the social determinants of health-related to asthma. A 2012 study by Woods et al. of the effectiveness of the Community Asthma Initiative shows a significant decrease in asthma emergency department visits and hospitalizations and a decrease in child missed school days, and parent missed workdays due to a reduction in the child's asthma symptoms (all $P < .0001$). Community-based interventions focusing on the school environment also show effectiveness in improving asthma symptoms for children by educating students and school personnel on asthma management, assisting families with asthma care coordination, improving indoor air quality, or instituting an

ozone awareness program for outdoor recess decisions (Jhun et al., 2016; Liptzin et al., 2016; Mickel et al., 2017; Shendell et al., 2007).

There are additional effective community-based prevention strategies for dental caries, obesity, and asthma than those included in this literature review; however, the interventions discussed are strategic in showing the vast array of opportunities to impact complex, multi-variate health conditions. The researcher hypothesizes that the type of successful community-based strategies presented in this review for one of the three health conditions—dental caries, obesity, or asthma—could be used to address all three of these health conditions in some strategic way. Overlap exists among the strategies for the prevention of these three health conditions; therefore, community health professionals must work together to prevent childhood dental caries, obesity, and asthma. This research study is necessary to investigate how strategies, such as those mentioned in this section, can align to influence childhood dental caries, obesity, and asthma. The Spectrum of Prevention is well-suited as the posteriori theoretical framework guiding this multiple case study because it recognizes that communities are searching for effective prevention strategies to address complex health conditions, especially health conditions with substantial social factors (Cohen & Swift, 1999).

Challenges to Addressing Dental Caries, Asthma, and Obesity Collaboratively

Community-based strategies are complex and challenging to implement when focusing on just one health condition; complexity increases when addressing more than one health condition. However, due to the relationship between childhood dental caries, obesity, and asthma—the collaboration of community-based strategies preventing these three health conditions is essential for improving the health of today's children in the

United States. There is accountability for organizations and agencies all working on the prevention of multiple health conditions to provide innovative, efficient, and effective community-based strategies to improve the health of children in the United States. Thus, strategically assessing the intersection of successful strategies for dental caries, obesity, and asthma is necessary to offer a proactive, community-centered approach in addressing these three health conditions collaboratively, despite the complexity and challenges within coordinated community-based prevention efforts.

Preventing dental caries, obesity, and asthma during childhood is a complex problem. Keeping children healthy from any health condition requires not only community-based strategies but also medical health or dental health care providers to partner with other organizations such as schools, housing authorities, or other governmental agencies; many interdisciplinary strategies are necessary. The first challenge to addressing multiple health conditions is the “wrong pocket problem” (Erickson, 2014; Taylor et al., 2016). The wrong pocket problem insinuates “the savings that accompany health improvements do not accrue to the investor” (Taylor et al., 2016, p. 16). There are many organizations needed for the prevention of dental caries, obesity, and asthma, yet the social service or governmental organizations partnering to help prevent these health conditions receive little, if any reward, or financial savings for this improvement in community health. Therefore, “the wrong pocket problem discourages cross-sector collaboration” (Taylor et al., 2016, p. 16). Cross-sector collaboration is essential in addressing childhood dental caries, obesity, and asthma collaboratively.

Secondly, to adequately address childhood dental caries, obesity, and asthma collaboratively, an integration of community-based strategies (well-care) and primary

clinical health (sick-care) is vital; yet community-based approaches and primary clinical health care are often viewed as two disconnected worlds (Leppin et al., 2018). Both community-based prevention strategies and primary clinical health care have administrative and organizational practices that are siloed. Intentional effort must bridge the gap between community-based approaches and primary clinical health care. This deliberate effort begins with utilizing evidence-based strategies and programs that are grounded in theory and recognize the many influences that impact a child's health today, influences such as the social determinants of health. (Kuo et al., 2012; Leppin et al., 2018; Newton, 2012). A well-rounded perspective on children's health, including the many, broad determinants of children's health, requires greater collaboration between primary care pediatrics and public health to achieve the best children's health outcomes possible in the United States (Kuo et al., 2012). This essential coordination between primary care and public health, also known as community health, includes addressing dental caries, obesity, and asthma collaboratively.

The third and final challenge in collaboratively addressing dental caries, obesity, and asthma is the issue of sustainability in community-based strategies. About community-based strategies, sustainability is a "multidimensional concept of the continuation process" (Shediac-Hizballah & Bone, 1998). Sustainability is challenging for community-based strategies when focusing on only one health condition. More than one health condition addressed among an intervention could potentially add more complexity, further challenging the sustainability of the intervention. However, planning for sustainability in community-based strategies makes it more feasible to continue these strategies long term. Shediac-Rizallah and Bone (1998) consider these factors critical to

improving sustainability: the strength of an organization that is implementing the program, integration of community-based strategies with existing programs or services, and reliable program champions and leaders. While all three of these factors are essential, the integration of community-based strategies with existing programs or services directly relates to the importance of this study. Integrating community-based strategies with existing programs or services makes sustainability is less of an issue. Investigating where community-based strategies align on the Spectrum of Prevention for dental caries, obesity, and asthma will expose overlap and opportunities for strategies to integrate to address all three of these health conditions collaboratively.

These three challenges: the “wrong-pocket problem,” disconnect between community-based strategies and primary clinical health care, and a lack of sustainability in community-based strategies are challenges addressed using a multi-level theoretical framework, such as the Spectrum of Prevention. Although these challenges in creating a more coordinated approach to addressing dental caries, obesity, and asthma are valid, this case study is mindful of these challenges from the beginning, which is the reason for the selection of the Spectrum of Prevention as the guiding theoretical framework. The Spectrum of Prevention framework acknowledges that multi-disciplinary efforts are required for the prevention of complex health conditions, as complex problems often require comprehensive solutions.

Conclusion

Given the relationship between dental caries, obesity, and asthma during childhood, addressing them through a more coordinated approach with community strategies that align with the Spectrum of Prevention theoretical framework will achieve

greater impact. Research is lacking in community health strategies that collaboratively address dental caries, obesity, and asthma among children. The prevalence and severity of these three chronic conditions necessitate prevention efforts with families, especially families of a racial minority or low income. Although dental caries, obesity, and asthma are complex health conditions during childhood, each is preventable with the successful implementation of strategies at the community level utilizing collaborative effort among a broad range of organizations.

Not only are dental caries, obesity, and asthma complex, chronic conditions widely prevalent among children in the United States, with health disparities existing among marginalized children, but also these health conditions relate through overlapping risk factors. Some research even suggests they are comorbidities of one another, meaning if one of these conditions is present in a child, it is likely the child also has one of the other two conditions. Consequently, the complicated relationship of dental caries, obesity, and asthma, particularly during childhood, generates both the necessity for and barriers to interdisciplinary multi-variate primary prevention efforts.

Dental caries, obesity, and asthma are multi-factorial health conditions that most often require children and their parents to modify their behaviors to make healthier choices. It takes effort on behalf of the family, service providers, health care professionals, and community to prevent one or more of these conditions or, at the very least, eliminate a risk factor, which results in a great deal of coordination. Therefore, solely providing community education strategies are not enough for the prevention of these three health conditions. Successful health promotion and disease prevention

strategies often require a systems approach, interdisciplinary collaboration, and a well-educated community to align prevention messages and practices.

Due to a gap in the research regarding collaborative efforts around community-based prevention strategies addressing dental caries, obesity, and asthma during childhood, there is a need to investigate the intersectionality of these three health conditions through a multi-variate theoretical framework. An investigation of multi-level strategies using the Spectrum of Prevention theoretical framework to determine where strategies for dental caries, obesity, and asthma align will help to coordinate community health improvement efforts more strategically. The Spectrum of Prevention framework provides a methodology to synergize community strategies for dental caries, obesity, and asthma. Because today's health services need to be more effective and efficient, aligning community strategies for all three of these health conditions brings a greater impact on improving child health. Thus, to move to a more coordinated approach, this multiple case study investigates where effective strategies for childhood dental caries, obesity, and asthma intersect along the Spectrum of Prevention theoretical framework.

The Spectrum of Prevention is a framework that identifies six levels of prevention to help community health professionals move beyond the perception of prevention being only educational strategies. The six levels of the Spectrum of Prevention are proven to have a more significant effect when used. Common themes throughout this literature review for childhood dental caries, obesity, and asthma involved: a relationship between three multi-variate health conditions, health disparities among children of a racial minority or low-income with a lack of access to care and a lack of parental awareness, and complex social factors impacting the prevalence of these three health conditions. The

Spectrum of Prevention theoretical framework provides a guide for multi-level strategies that influence individual knowledge and behaviors but also recognizes the importance of society, policy, and the environment in community-based prevention strategies.

Essentially, this theoretical framework acknowledges that communities should take ownership of improving the health of children and provides the structure for interdisciplinary multi-variate primary prevention efforts.

In summary, this study will determine a coordinated approach for community health professionals to use in addressing childhood dental caries, obesity, and asthma through the lens of the Spectrum of Prevention. The goal of the study aims to synchronize multi-variate prevention efforts for dental caries, obesity, and asthma from a community-based strategies aspect. Ultimately, this study fills a gap in research regarding where prevention strategies align on the Spectrum of Prevention for childhood dental caries, obesity, and asthma, to guide a more coordinated approach with future community health strategies in the prevention of these three health conditions.

Children are one of society's greatest assets. The optimum health of children within the United States is imperative for their growth and development—the prevention of dental caries, obesity, and asthma plays a vital role in children's health. Given the relationship of these three health conditions, it is time for community health professionals to begin addressing these conditions more collaboratively. The following chapter elucidates this research study's design, methods, and protocols.

CHAPTER THREE

Methodology

Introduction

As demonstrated in the previous chapter, dental caries, obesity, and asthma episodes often co-occur among children in the United States and share many risk factors, yet these conditions are preventable (Chi et al., 2017; Genova et al., 2018; Marshall et al., 2007; Spiegel & Palmer, 2012). There is a need to address dental caries, obesity, and asthma more collaboratively through prevention efforts; however, research lacks coordinated community-based prevention strategies for these three health conditions. Traditionally, community-health approaches preventing dental caries, obesity, and asthma during childhood are more siloed (Beasley et al., 2015; Kuo et al., 2012).

This multiple case study identified barriers and successful commonalities among community-health strategies aligning with the Spectrum of Prevention framework to prevent dental caries, obesity, and asthma episodes during childhood. The purpose of identifying the barriers and successful commonalities among strategies tackling dental caries, obesity, and asthma episodes are to recommend a coordinated approach to community health professionals for addressing these three conditions with children and families more collaboratively. This study was designed to elicit multiple perspectives to postulate an awareness of why addressing dental caries, obesity, and asthma is currently more siloed among community-health prevention strategies and potentially uncover the feasibility of addressing these health conditions more collaboratively.

The researcher selected a multiple case study design for this study to obtain a well-rounded view of the circumstances within this research topic (Yin, 2018). Yin (1999) states that these conditions favor case studies over other methods for health services research: the problem involves “‘mega-systems’ of great complexity” linking multiple components in new ways, there are ever-changing rules within a health-system, and corporate affiliations and motivations can be difficult to track (p. 1209). The conditions that Yin (1999) speaks to for health services research are increasingly applicable for this multiple case study due to the complexity of childhood dental caries, obesity, and asthma. Figure 3.1 provides a high-level overview of this multiple case study research design discussed throughout Chapter Three.

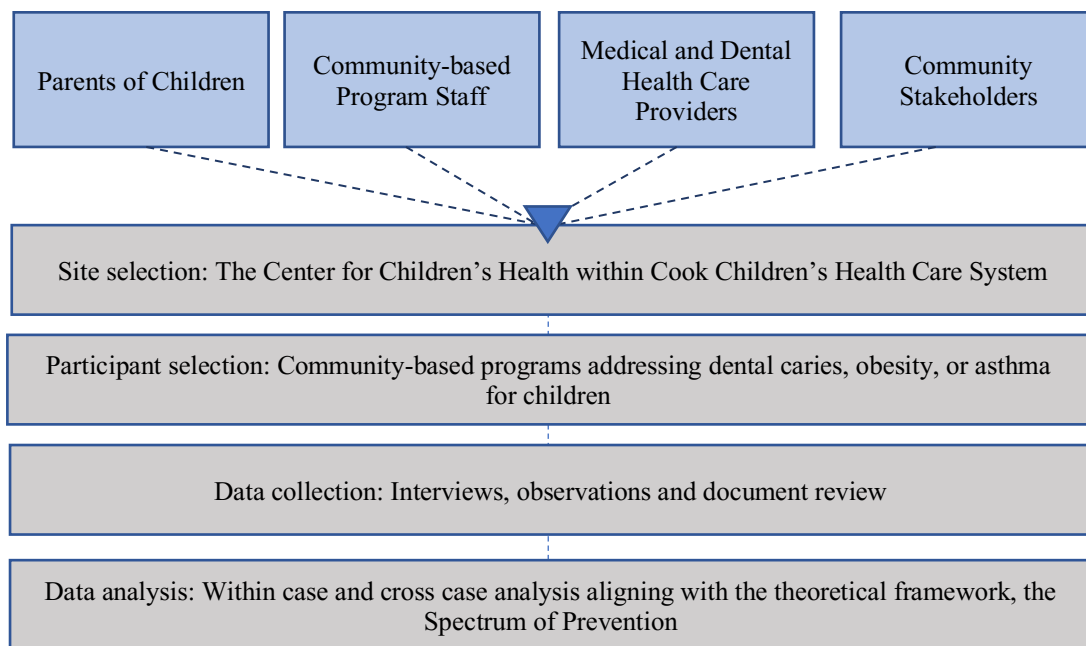


Figure 3.1. The overview of this multiple case study design.

The investigation methodology compounded the interdisciplinary approach required for the prevention of these conditions individually in determining how to

approach these three health conditions more collaboratively. Collaborative efforts for the prevention of dental caries, obesity, and asthma during childhood will most likely require system-level change and interdisciplinary coordinated efforts. Ultimately, this multiple case study aimed to develop a lens for better coordination between community health professionals, primary clinical health care providers, and other community stakeholders working to improve the health and well-being of children. The subsequent research design section within this chapter explains further elements of the research design selections and rationale.

Research Questions

For this research study to synchronize multi-variate prevention efforts for dental caries, obesity, and asthma from a community-based strategies lens, the study treated the discovery from each case as equally essential and unique evidence. Merriam (2009) explains, “the experience a person has includes how the experience is interpreted” (p. 9). The experience of each case selected in this case study uncovered a different yet equally important aspect interpreted by the participants of that case.

To accommodate the stratified sampling that defined the multiple cases within this case study, the researcher selected using an overarching question that pertains to all four cases, with each case necessitating a specific primary question. The Site Selection and Participant Sampling section within this chapter provides further explanation of the sampling practices for this study. Still, the decision to investigate a primary question for each case resulted from the unique perspective each case brings to this multiple case study. Figure 3.2 below displays the overarching research question and the primary question for each case guiding this multiple case study. Through the research questions

indicated in Figure 3.2, this multiple case study uncovered the intersectionality of barriers and successes for addressing dental caries, obesity, and asthma—which also highlighted solutions for strategic collaboration among these three health conditions.

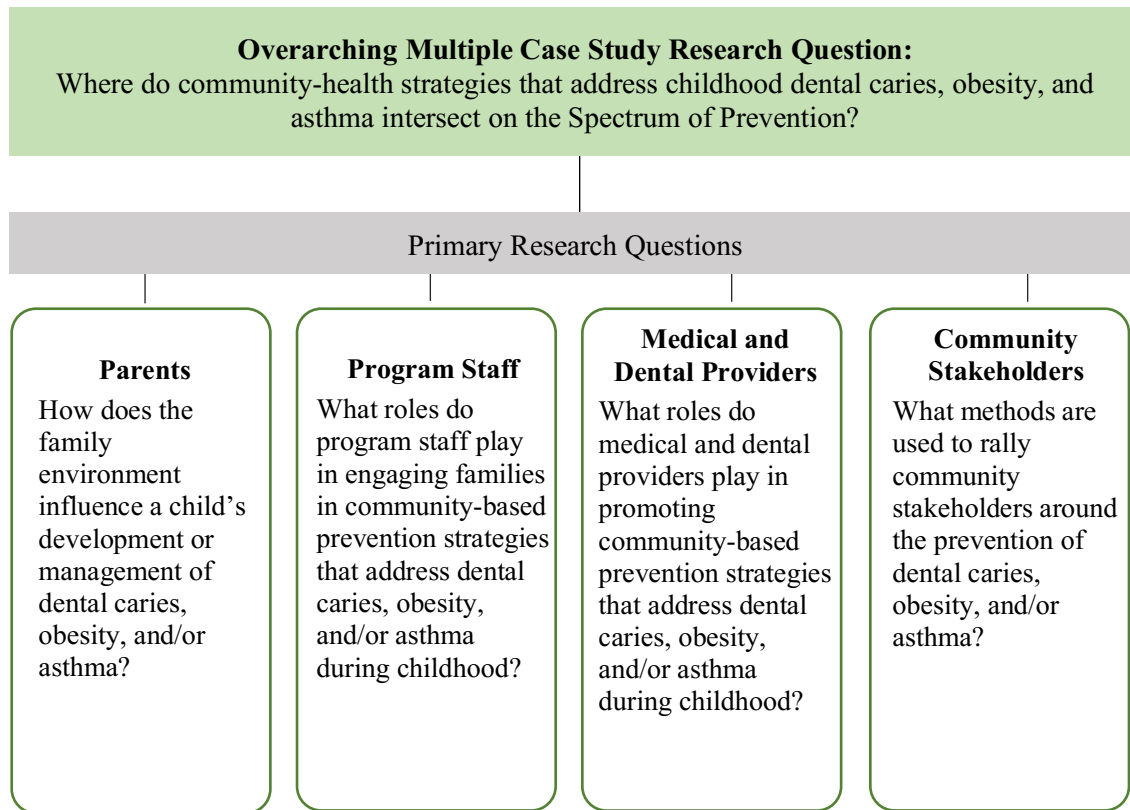


Figure 3.2. The overarching and primary research questions for this multiple case study.

Researcher Perspective

As the researcher for the study, it is essential to note that I have worked in health care for over 17 years. I began my health care journey as a clinical dental hygienist and worked in private practicing dental offices for more than a decade. When I moved to Houston to start dental hygiene school, it was quite a culture shock after growing up in a small town. Despite this experiential shift in culture, I loved every minute of living in a large, multicultural metropolis. I enjoyed meeting and interacting with my classmates and

professors whose culture was different from my own. I believe this awareness was an early step in widening my lens by learning to care for and treat all patients with culturally responsive care within my schooling and career as a dental hygienist. During dental hygiene school, I discovered and observed first-hand the existence of health inequity and the lack of access to care that occurs in our society. The desire to improve access to care for vulnerable populations, such as families of low-income or families of a racial minority, propelled me to continue my education and study community health prevention. My philosophy is that everyone deserves the right to be healthy and access health prevention strategies to become healthier. I believe there is collective, synergistic power in community-based health prevention programs and strategies, particularly for children and families with health disparities. Due to my beliefs and passion for community health prevention, I transitioned from clinical dental hygiene to working in community health promotion at Cook Children's Health Care System in Fort Worth, Texas.

Over the last nine years, I have worked within the Center for Children's Health for Cook Children's Health Care System. Dental caries, obesity, and asthma during childhood are three of the six health topics addressed within the Center for Children's Health. I have held many different positions within the Center during the last seven years. I have coordinated the Children's Oral Health Coalition, taught dental education to community professionals, and developed dental health and obesity prevention curriculum for community education programs. I am knowledgeable of the history, design, and staff of the programs and initiatives that provide the qualitative data for this research study. In my current role as Director of Child Health Evaluation, I am intimately involved in developing the process outputs of the community-based programs and initiatives

surrounding dental caries, obesity, and asthma; thus, my axiological and epistemological views could influence my interpretation of the qualitative information I receive from this study. My intimate knowledge of the programs, staff, and community stakeholders providing the data sources within this study could potentially influence my view as the “primary instrument of data collection and analysis within this study” (Merriam, 2009, p. 214).

To remain mindful of my positionality and reflexivity as a researcher, I “engaged in self-understanding about the biases, values, and experiences” that I brought to this study (Creswell & Poth, 2018, p. 229). I triangulated my data through the use of multiple sources. I used member checking and peer reviews to ensure I “clearly articulated the patterns I saw in the data categories” (Creswell & Poth, 2018, p. 229). As the researcher, I also looked at the data from both the lens of the researcher and the reader and applying these different lenses aided in establishing credibility, mainly through the research participant’s lens (Creswell & Poth, 2018). As the researcher in this study, I strived to validate that the data interpretation represented the authentic experience of the study participants. Further discussion of how I addressed the validity and credibility of this research study is explained in more detail in both the Research Design and Data Analysis sections within this chapter.

In conclusion, it is essential to note that I have a constructivist world view. As one of the primary assumptions of constructivism, Guba and Lincoln (1989) posit that “phenomena can only be understood within the context in which they are studied; findings from one context cannot be generalized to another; neither problems nor solutions can be generalized from one setting to another” (p. 45). I am conducting this

study to understand the shared barriers and successes of community-health prevention strategies for dental caries, obesity, and asthma during childhood. Because research shows these three health conditions during childhood are most often comorbidities of one another, they are preventable through community-health prevention strategies, and are historically addressed through a siloed approach, I investigated where prevention strategies intersect for a more collaborative approach. This understanding required inquiry of multiple participant meanings and perspectives—including parents, community-based program staff, medical and dental providers, and community stakeholders; however, this narrow understanding is from participants derived from the programs and strategies within the Center for Children’s Health.

Theoretical Framework

The Spectrum of Prevention is a framework that identifies six levels of prevention to help community health professionals move beyond the perception of prevention being only educational strategies. The six levels of the Spectrum of Prevention are synergistic and proven to have a more substantial effect when used together (Cohen & Swift, 1999). Merriam (2009) clarifies that the framework of a research study “will generate the ‘problem’ of the study, specific research questions, data collection and analysis techniques, and how you will interpret your findings” (p. 67). Ultimately, strategies designed using the Spectrum of Prevention framework intend to increase and sustain community capacity to improve health. Given the relationship between dental caries, obesity, and asthma during childhood, addressing them through a more coordinated approach with community strategies that align with the Spectrum of Prevention will achieve a more substantial impact.

When developing the overarching research question for this study, the Spectrum of Prevention directly connects to the central phenomenon. Research indicates that community-based strategies that utilize the Spectrum of Prevention framework achieve a greater impact (Cohen & Swift, 1999). Thus, utilizing this framework within the overarching question of this multiple case study pulls the information together—particularly the information collected through the lenses of dental caries, obesity, and asthma. To approach preventing childhood dental caries, obesity, and asthma synergistically, it is important to research both the barriers and commonalities that exist among successful interventions and determine where these interventions intersect on the Spectrum of Prevention. The four primary research questions, one for each case within this study, undergird the overarching question by providing a more-in-depth examination of the information that each case offers. Parents, program staff, medical and dental providers, and community stakeholders potentially all interact with community-based prevention strategies differently. They may even address strategies at different levels of the Spectrum of Prevention framework, as well as different levels from one another. The primary research question for each case is designed to investigate what levels of the Spectrum of Prevention each case may address.

As all facets of a study “are affected by its theoretical framework” (Merriam, 2009, p. 67), this multiple case study investigated the perspective of parents, community-based program staff, medical and dental providers, and community stakeholders where prevention strategies for children involving dental caries, obesity and asthma aligned with the Spectrum of Prevention framework. The researcher further examined where the strategies for these three health conditions intersected with one another on the Spectrum.

Figure 3.3 depicts the Spectrum of Prevention framework and its relevancy to the cases selected for this case study.

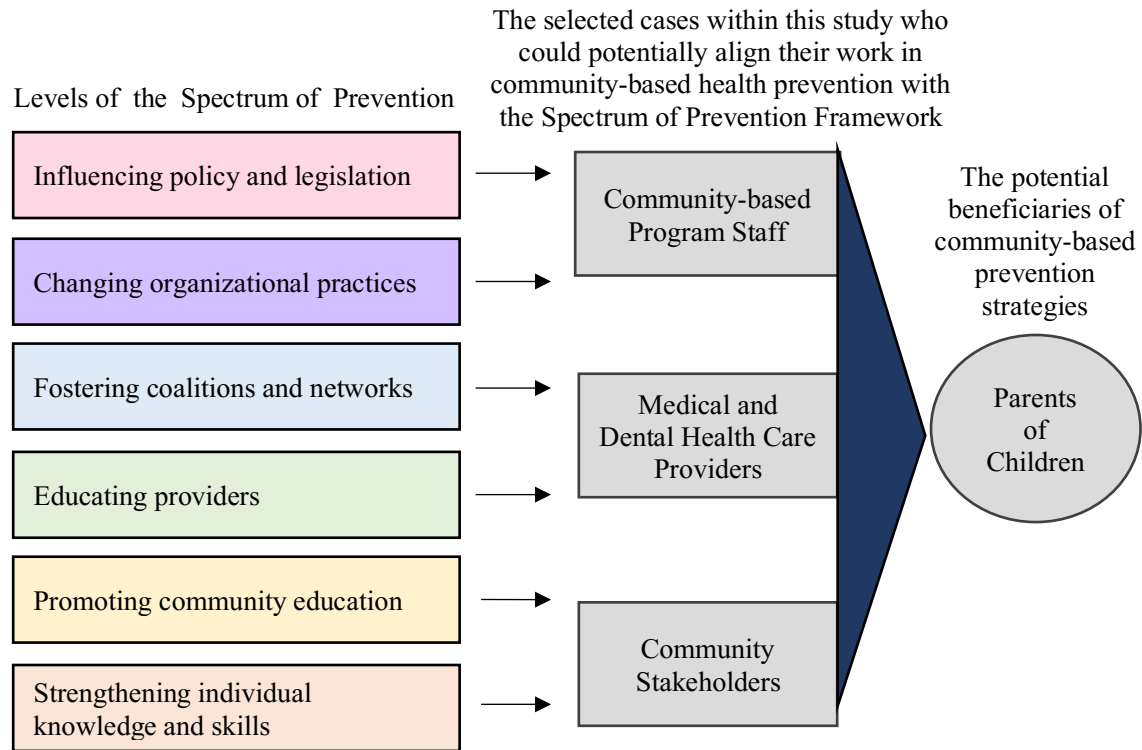


Figure 3.3. The levels of the Spectrum of Prevention framework and selected cases within this multiple case study.

To learn the perspectives of each case within this study, the levels of the Spectrum of Prevention framework provided validation for using multiple sources of data collection within each case. Solely using interviews might not offer an opportunity to dissect each level of the framework; however, using semi-structured interviews, participant observations, and document review allowed the researcher to investigate how each case interacted with or utilized strategies related to the different levels of the Spectrum of Prevention framework (Yin, 2018).

To gain an understanding of multiple participant meanings and perspectives—including parents, community-based program staff, medical and dental providers, and community stakeholders—this multiple case study allowed for a detailed inquiry (Creswell & Poth, 2018; Merriam, 2009; Yin, 2018). Successful health promotion and disease prevention strategies often require a systems approach, interdisciplinary collaboration, and a well-educated community to align prevention messages and practices (Cohen & Swift, 1999). The complexity of childhood dental caries, obesity, and asthma generates the necessity for multi-variate primary prevention efforts, much like a variety of strategies aligning with the levels of the Spectrum of Prevention framework. Analyzing the data using a within-case and cross-case analysis, first allowed the researcher to investigate how each case aligns with the Spectrum of Prevention framework and then synthesize the information from each case concerning dental caries, obesity, and asthma. If multiple-level strategies are incorporated for the prevention of one of the three health conditions—dental caries, obesity, or asthma—ignoring their interconnectedness when implementing solutions is irresponsible of community health professionals working to improve the health of children (Cohen & Swift, 1999).

Research Design

Collaborative efforts for the prevention of dental caries, obesity, and asthma during childhood will most likely require system-level change and interdisciplinary coordinated efforts. To support the appeal for understanding complex, multi-disciplinary phenomena concerning social experiences, a multiple case study design best allows for this type of exploration (Yin, 2014). According to Yin (2018), case studies postulate a mechanism for gaining a detailed look at complex social phenomena. As a method to

heighten an understanding of the complexities of coordinating community health prevention for dental caries, obesity, and asthma, this study collected “thick description with contextual details” to “communicate someone else’s experience of the world in his or her own words” (Patton, 2014, p. 107). Ultimately, a multiple case study design allowed the researcher to compare and contrast data from each case to explore how community health professionals can coordinate the approach to prevent dental caries, obesity, and asthma episodes during childhood.

The multi-faceted investigation within this multiple case study involved parents, community-based program staff, medical and dental health care professionals, and community stakeholders. The perspective of the parents provided specific insight into the barriers they face with seeking community or clinical health services to prevent dental caries, obesity, or asthma episodes with their children. This case study strived to understand the home environment and day-to-day struggles of these families regarding the prevention of childhood dental caries, obesity, and asthma—which is absent in the literature. The study also involved community-based program staff and medical and dental professionals from the Center for Children’s Health within Cook Children’s Health Care System, along with community stakeholders involved in the coalitions led by the Center for Children’s Health or other community initiatives.

The perspective of program staff, medical and dental professionals, and community stakeholders provided an awareness of what successes and challenges these groups of individuals face in working to engage families in prevention efforts around dental caries, obesity, and asthma with their children. Overall, each case investigation sought to understand the perception of community health prevention programs in

improving a child's health concerning dental caries, obesity, and asthma. This perception also uncovered why dental caries, obesity, and asthma during childhood are not collaboratively addressed in community-based prevention strategies and how a coordinated approach with these three health conditions could potentially work.

While quantitative data might provide insight into the prevalence of dental caries, obesity, or asthma during childhood, as well as the effectiveness of a single community-based prevention strategy or program—quantitative data cannot provide why these three health conditions are not addressed more collaboratively. As Merriam (2009) explains, case studies offer “a rich and holistic account of a phenomenon” and are “anchored in real-life situations” (p. 51). To understand the phenomenon of why community-based prevention strategies regarding dental caries, obesity, and asthma are not addressed through a more collaborative approach, a qualitative investigation must occur to gather a holistic description from multiple perspectives. This case study examined the interpretations of the data through different lenses, such as the lens of the awareness and encouragement of community-health prevention strategy participation from a health care provider, the communication of program staff to the program participants, and the family's life and culture in engaging with community-health prevention strategies. The Data Collection section within this chapter provides more specifics of the methodologies used to collect this holistic description, but in prevue, the researcher used semi-structured interviews, participant as observer observations, and document review.

In conclusion, this case study examined the data from the lens of the researcher and the reader. Examination through these different lenses aids in establishing credibility, mainly through the research participant's lens (Creswell & Poth, 2018). The researcher

strived to validate that the interpretations of the data represented the real experience of the parents, program staff, health care providers, and community stakeholders. To aid in describing the experience of the research participants, the researcher collected data in the natural setting of the programs and initiatives occurring within the Center for Children's Health. Lastly, the researcher was the key data collection instrument due to the accessibility of the participants within the study. The next section expounds on the site selection and participant sampling details and rationale.

Site Selection and Participant Sampling

This case study utilized purposeful sampling techniques to ensure the participants in each case were able to describe a rich, unique perspective as it relates to the central phenomenon of a collaborative approach to community-based prevention strategies for dental caries, obesity, and asthma episodes during childhood. Patton (2014) states, "the logic and power of purposeful sampling lies in selecting information-rich cases for in-depth study" (p. 401). Furthermore, maximum variation sampling includes purposefully selecting "a wide range of cases to get a variation on dimensions of interest to document the diversity and identify important common patterns that are common across the diversity" (Patton, 2014, p. 405). Maximum variation sampling in this study allowed for a variety of backgrounds within each case. This variety of experiences helped illuminate the need for multiple perspectives for investigating the complex phenomenon of coordinating community-based prevention efforts of dental caries, obesity, and asthma episodes during childhood. Examining a wide range of perspectives among the participants within each type of case provided a "greater range of application by readers or consumers" of this case study (Merriam, 2009, p. 227).

Yin (2018) states that “judgment will be discretionary, not formulaic” when choosing participants in a multiple case study (p. 59). After thoughtful discretion of the types of cases that aligned well with the Spectrum of Prevention framework, the cases selected for this multiple case study involved parents, community-based program staff and management, and coalition members of programs that are all led by the Center for Children’s Health within Cook Children’s Health Care System. This case study also included medical and dental providers employed by Cook Children’s Health Care System, that not only practice clinically, but are familiar with or work with the community programs led by the Center for Children’s Health. The community stakeholder participants within this study are not only coalition members or partners of programs with the Center for Children’s Health, but they are also employed by a community organization working with families in the realm of community health. Table 3.1 provides an overview of the participants within each case of this multiple case study and the number of participants included in semi-structured interviews. The perspective of each case is vital to gaining understanding within that individual case, so the convergent evidence can be used to determine “the information needing replication by the other individual cases” (Yin, 2018, p. 57). Replication logic is vital to this multiple case study to “predict similar results” within each case as well as across each case through literal replication (Yin, 2018, p. 55). To recruit participants, the sampling technique of purposeful maximum variation assists in further completing the purpose of this study, which is to explore barriers and successful strategy alignment with the Spectrum of Prevention framework to determine a coordinated approach among community professionals. Data collection procedures from each case are included in the next section.

As seen in Table 3.1, 18–24 participants is an acceptable sample size according to Merriam (2009) for a qualitative case study design.

Table 3.1

Participants

Case	Selected participants	Number of participants
Parents	Participants of the Save a Smile program or Healthy Homes Asthma program led by the Center for Children’s Health within Cook Children’s Health Care System	2–4
Program Staff	Program managers and staff from the following programs led by the Center for Children’s Health within Cook Children’s Health Care System: • Children’s Oral Health Coalition • Healthy Homes Asthma program • Healthy Children Coalition for Parker County • Save a Smile dental program	8–10
Health care Providers	Pediatricians and dentists with Cook Children’s Health Care System	4–6
Community stakeholders	Coalition members of the Children’s Oral Health Coalition, Save a Smile Advisory Committee, Healthy Children Coalition for Parker County (obesity prevention coalition), Asthma 411 (community collaborative), and additional community partners of the Center for Children’s Health	4–6

Data Collection

From the participants selected through purposeful maximum variation sampling, the study collected data through semi-structured interviews, participant as observer observations, and a review of documents—meeting minutes, program measure reports,

and strategic goals and objectives. According to Patton (2014) and Yin (2018), multiple forms of data collection allow for better triangulation. To thoroughly understand commonalities among community-based prevention strategies for dental caries, obesity, and asthma during childhood, Yin (2018) clarifies “multiple sources of evidence essentially provide multiple measures of the same phenomenon” (p. 128). These multiple sources of data offer a more careful investigation of the emerging findings across parents, program staff, medical and dental providers, and community stakeholders, as their experiences align with the six levels of the Spectrum of Prevention framework. The remaining paragraphs in this section explain the rationale and details for each type of data collection method.

Interviews

For this case study, semi-structured interviews were conducted with parents, program staff, medical and dental providers, and community stakeholders. Semi-structured interviews allow for more open-ended questions enabling participants to “define the world in unique ways” (Merriam, 2009, p. 90). Yin (2018) clarifies that case studies are a targeted way of collecting information from participants and can provide “explanations as well as personal views” (p. 114). The parents’ unique viewpoint provided specific insight into the barriers they may face in seeking community or clinical health services to prevent dental caries, obesity, or asthma episodes for their children. Through the semi-structured interview process, the researcher strived to understand the home environment and day-to-day struggles of these families regarding the prevention of childhood dental caries, obesity, and asthma lacking in current literature. The interviews with program staff, medical and dental professionals, and community stakeholders

provided an awareness of what successes and challenges these groups of individuals face in working to engage families in prevention efforts around dental caries, obesity, and asthma with their children.

Due to being Director of Child Health Evaluation within the Center for Children's Health, the researcher can readily access parents and program staff from the programs led by the Center for Children's Health. The medical and dental providers selected for interviews are those providers working within or familiar with the programs led by the Center for Children's Health. The community stakeholders chosen for interviews are current coalition members or community partners associated with the coalitions or programs led by the Center for Children's Health. Using a different primary research question for each case within this study, the researcher connects interview questions to investigate how each case's perspective ultimately aligned with the theoretical framework guiding this study. Specific interview questions for each case are noted in Appendix A.

For community health professionals educating parents of children with preventable, chronic health conditions, parents must understand health information or instructions taught to them by health service professionals to deliver care to their child at home or outside of the health care system, in the best way possible. Yin et al. (2017) reports that over one-third of U.S. adults have low health literacy and there is a disproportionate share of lower health literacy skills with individuals from low socioeconomic and racial minority populations (p. 919). For parents to understand health information, they need to possess good health literacy skills to follow the education or direction of the health service professional. Yin et al. (2017) indicates, "health literacy refers to an individual's ability to acquire, understand and make informed decisions using

health information, and includes the ability to navigate the health care system; the construct of health literacy extends beyond the concept of literacy” (p. 919). To remain mindful of health literacy throughout interview questions for parents within this multiple case study, the interview questions utilized the word “tooth decay” instead of “dental caries.” Due to the sensitivity of speaking with parents about obesity, the questions used the terms “overweight” or “weight concern.” The interview protocol for this study is in Appendix A.

Observations

Another source of data collection within this case study was participant observations. According to Yin (2018), participant observation’s important strengths are the context that observing an element of the case can provide, as well as the immediate examination of the actions of the participants within the case study. This case study observed one coalition or advisory committee meeting of selected programs led by the Center for Children’s Health that addresses dental caries, obesity, or asthma during childhood. The researcher works closely with the program staff and could easily employ observation methods of a coalition or advisory meeting while they were occurring. Coalition and advisory meetings were selected for observation because, as mentioned in Chapter Two, coalitions can extend the reach of professionals working to improve a health condition with a centralized strategy and impact (Butterfoss et al. 1993; Crawford et al., 2013). Fostering coalitions and networks is also a strategy level of the Spectrum of Prevention theoretical framework guiding this case study.

Table 3.2 demonstrates the programs and events selected for observation and the health condition that these programs address. The observation involved the interaction of

program staff that coordinated these program meetings, and the community stakeholders that volunteer and support the programs. The researcher observed one meeting for each of the types of meetings listed in Table 3.2. Each meeting was 60–90 minutes in length and was conducted through the virtual platform, Zoom. The meetings involved 15–30 community stakeholders in attendance. The researcher actively participated in meeting discussions according to the agenda for each meeting. With permission from the meeting coordinators, the researcher recorded notes for each meeting in Table 3.2 and these notes were utilized in the data analysis for this study. The observation protocol for this study can be found in Appendix B.

Table 3.2

Participant Observations

Health Condition	Program Events Selected for Observation
Dental caries	Save a Smile: Advisory Committee meeting and Children’s Oral Health Coalition meeting
Obesity	Healthy Children Coalition for Parker County meeting

Document Review

The final method of data collection within this case study was document review. As Director of Child Health Evaluation within the Center for Children’s Health, the researcher can access archival data for programs related to dental caries, obesity, and asthma. This case study reviewed archival records, including meeting minutes, program measure reports, and strategic plans which contained the program or coalition’s goals and objectives. Yin (2018) states that reviewing documents and archival records offers a stable, inconspicuous, and commodious approach to investigating details, events, and

settings related to a case. Although Yin (2018) also denotes that access and retrievability are often a weakness for this type of data collection, the researcher's position within the Center for Children's Health allowed access to all necessary documents. Table 3.3 indicates the nature of documents reviewed for this case study, and the number of documents reviewed per type.

Table 3.3

Document Review

Health Condition	Programs	Documents	Number of Documents
Dental caries	Save a Smile Program; Children's Oral Health Coalition	Meeting minutes Program measure reports Strategic plans	2–4
Obesity	Healthy Children Coalition for Parker County	Meeting minutes Program measure report Strategic plan	2–4
Asthma	Healthy Homes Asthma Program; Asthma 411	Meeting minutes Program measure reports Strategic plans	2–4

Examining documents and archival records from community-based programs addressing dental caries, obesity, and asthma within the Center for Children's health provided another layer of data to determine parallelism of strategies among these three health conditions, particularly as these strategies aligned with the different levels of the theoretical framework guiding this study, the Spectrum of Prevention.

Data Analysis

The data collection methods within this research study were selected and designed to provide data that allowed for better triangulation. Multiple sources of evidence

provided the researcher a more careful investigation of the emerging findings across parents, program staff, medical and dental providers, and community stakeholders, as their experiences align with the six levels of the Spectrum of Prevention framework. The remaining paragraphs within this section discuss the data analysis procedures and validation strategies utilized for this multiple case study.

Procedures and Analysis

Analysis during collection leads to data that are better focused, less repetitious, and more manageable (Merriam, 2009). Within each case of this multiple case study, data was organized, and initial segmentation began by dividing the data into the broad themes of education/awareness, networking, organizational practices, and policy, as well as noting if the data collected derived from the lens of dental caries, obesity, or asthma. Merriam (2009) clarifies that “data that have been analyzed while being collected are both parsimonious and illuminating” (p. 124). This early organization of data into themes arose from the theoretical propositions technique noted by Yin (2018). The posteriori theoretical framework utilized within this study is the Spectrum of Prevention by Cohen and Swift (1999). The levels of the Spectrum of Prevention include “strengthening individual knowledge and skills,” “promoting community education,” “educating providers,” “fostering coalitions and networks,” “changing organizational practices,” and “influencing policy and legislation” (Cohen & Swift, 1999, pp. 204–206). The different levels of the Spectrum of Prevention framework provided ideal themes for data segmentation within this case study. The additional layer of examining the data within each theme across the categories of dental caries, obesity, and asthma clarified the barriers and commonalities among these three health conditions. Figure 3.4 illustrates the

entire data analysis process utilized with this multiple case study. The figure shows the data collected and then moves into the framework analysis conducted within each case. The figure then indicates the cross case thematic analysis that also filters through the lens of dental caries, obesity, and asthma to investigate where community health strategies align for coordination opportunities addressing these three health conditions.

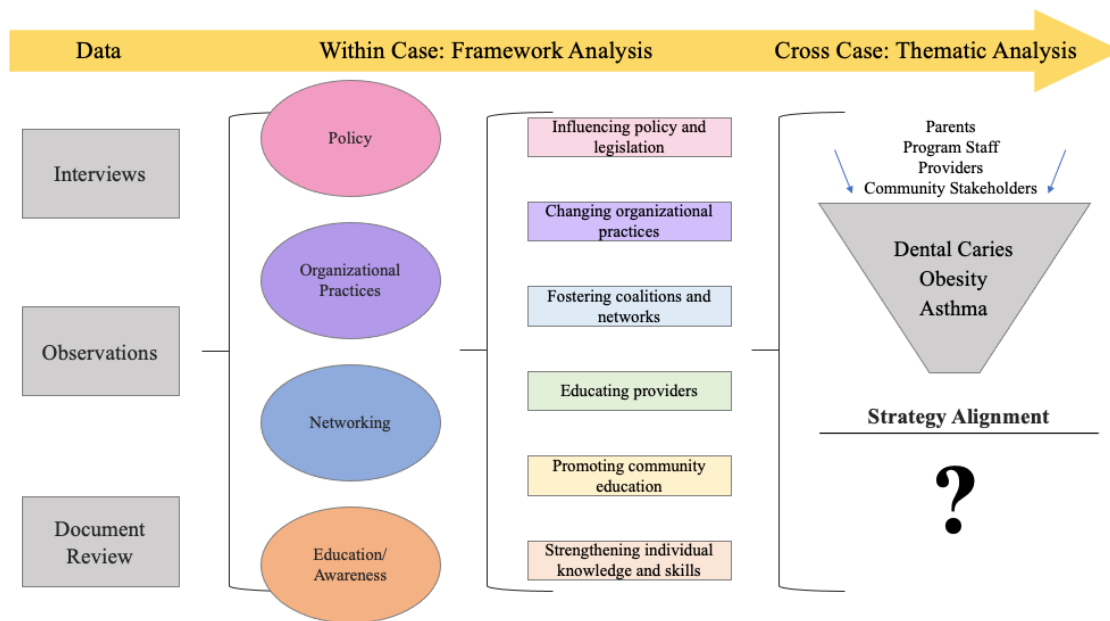


Figure 3.4. The data collection and analysis methodologies within this multiple case study.

Before pattern matching, the researcher began “playing” with the data within each case, as recommended by (Yin, 2018, p. 167). This data playing involved “searching for patterns, insights, or concepts that seem promising” (Yin, 2018, p. 167). The researcher also exercised memoing during data collection to assist in organizing and categorizing the data, which led to “creating a visual display or flowchart” (Yin, 2018, p. 167). The researcher continued analysis with “cross-case synthesis” as recommended for analysis within multiple case studies (Yin, 2018, p. 194). According to Stake (1995), to aid in

understanding coded data, it is essential to identify “relevant variables and situations in which the variables are observable”; thus, the researcher wanted to understand the data within each case before examination across each case (p. 29). Understanding data across each case—as well as through the lens of dental caries, obesity, and asthma—was augmented by “early identification of situations” of apparent issues (Stake, 1995, p. 29). Due to the unique perspective of each case within this study, gaining an understanding within each case was vital before data examination across each case. Ultimately, building upon the data analysis led to the final synthesis of data and the purpose of this study, examining the commonalities among dental caries, obesity, and asthma.

Validation Strategies

This case study used multiple sources of evidence—semi-structured interviews, observer as participant observations, and document review. According to Yin (2018), to increase construct validity, the study should “use multiple sources of evidence in a manner encouraging convergent lines of inquiry” (p. 44). The researcher asked key informants, such as program management, health care providers, and other experts in community health, to “review the draft of the case study report” (Yin, 2018, p. 43).

To address internal validity within this study, the researcher used pattern matching, explanation building, and addressed rival explanations (Yin, 2018). Before data collection, the researcher determined predicted pattern categories and then compared an empirical pattern based on the data (Yin, 2018). With rival explanations, if a particular threat to the thematic logic is revealed, comparing these across cases may help communicate that such threats are not plausible due to repeated comparisons (Yin, 2018). “To ‘explain’ a phenomenon is to stipulate a presumed set of causal sequences about it,

or ‘how’ or ‘why’ some outcome has occurred” (Yin, 2018, p. 179). To build an explanation of the data collected within this multiple case study, the researcher compared the successes and barriers noted between each case among the phenomenon occurring with strategies around dental caries, obesity, and asthma. To improve external validity, Yin (2018) recommends using “replication logic in multiple case studies” (p. 43); therefore, this study carefully selected the cases from parents, program staff, health care providers, and community stakeholders to detect theoretical replications, as either similar or contradictory patterns among the different cases.

To improve data reliability, the study utilized “a case study protocol, developed case study database, and maintained a chain of evidence” (Yin, 2018, p. 43). For a case study protocol, the researcher provided a sound literature review to explain the topic and problem being investigated. This multiple case study also used “procedures for protecting human subjects” and maintained transparency in identifying data sources and communication with research participants (Yin, 2018, p. 94). This study utilized formal protocol questions during data collection and selecting sources of evidence. The report includes reflective descriptive and necessary sections for outlining the study components. The researcher organized data collected into two separate distinctions—a data or evidence base and the study report. Differentiating the collected data from the case study report helps to “preserve the data in a retrievable form” (Yin, 2018, p. 131); as well as help readers and key informants differentiate between the narrative and numerical data used in the study, rather it being lost or embedded in the report. Yin (2018) states that a “chain of evidence will allow the reader to follow the derivation of any evidence from

initial research questions to ultimate case study findings” (p. 134). The researcher maintained a chain of evidence for the case study.

Ethical Considerations

Before any data collection, the researcher gained permission from the Assistant Vice President of the Center for Children’s Health. The researcher also received agreement from all associated directors within the Center for Children’s Health before connecting with program families, staff, medical and dental providers, and community stakeholders. Contact with the Baylor University Institutional Review Board (IRB) and the Cook Children’s IRB revealed that formal approval was unnecessary before the onset of this multiple case study.

All records related to the study were stored on a secure laptop and backed up on a secure drive on the Cook Children’s system network. To protect the “privacy and confidentiality of those who participate” in the case study, the participants’ names are not revealed, and number aliases are used instead (Yin, 2018, p. 88). All participants signed formal consent forms to participate in the study. Yin (2018) recommends “gaining informed consent from all persons who may be a part of your case study, by alerting them to the nature of your case study and formally soliciting their volunteerism in participating in the study” (p. 88). Appendix C contains the consent form utilized in this study.

This case study refrained from offering incentives for research study participation. As an employee of Cook Children’s, offering incentives might be misinterpreted by participants, especially parents, as payment from Cook Children’s, and participants could feel compelled to respond favorably instead of being authentic with responses. The risk to the parents could be a disclosure or researcher discovery of child abuse or neglect. The

threat to program staff or medical and dental providers could include disclosure of dissatisfaction with the Center for Children's Health or Cook Children's. To remain mindful of the vulnerability of parents and Cook Children's employees participating within this study, all names were re-coded to a numerical system, as using an initial might still be identifiable of the program staff. A digital recording device with password encryption was used for recording interviews. While the ethical considerations of this case study help to communicate the trustworthiness and credibility of the study, the following section discusses the limitations and delimitations of this study, as it is essential for all research designs to discuss "their relative strengths and limitations" (Merriam, 2009, p. 50).

Limitations and Delimitations

There were several limitations and delimitations within this multiple case study. The first limitation was the program staff, medical and dental providers, and community stakeholder participants in this study are very familiar with the importance of community health programs. The participants' perception concerning community health prevention strategies could have been overly favorable to finding a collaborative solution for addressing dental caries, obesity, and asthma during childhood. This issue was addressed by purposeful, maximum variation sampling among the participants to ensure inclusion of program staff, medical and dental providers, and community stakeholders that hold a variety of viewpoints. The second limitation was that the parents participating in this study might be less willing to share anything negative about the programs, program staff, or medical and dental providers they have encountered from the Center for Children's Health within Cook Children's. Cook Children's has a well-respected reputation among

the community for taking excellent care of children's health needs, and parents may not feel comfortable sharing any negative experiences for fear of damaging their relationship with Cook Children's. This limitation was addressed by establishing a trusting relationship with the parent participants within the study and keeping parent participation anonymous through a number alias within the results. Finally, as the researcher, I have extensive knowledge of the community-based programs, staff members, and community stakeholders participating in the study. My intimate knowledge of the programs and study participants could be viewed as researcher bias; however, I asked key informants, such as department leadership, program management, health care providers, and other experts in the field of community health to "review the draft of the case study report" to ensure a lack of bias in the findings (Yin, 2018, p. 43). This peer review technique assisted in eliminating researcher bias.

One delimitation of the study was the lack of gathering more input from medical and dental providers, such as through a questionnaire. Due to the COVID-19 pandemic of 2020, the schedule, workload, and emotional burden of medical and dental providers were more demanding than ever before. Because of COVID-19, I could not ask for participation in a questionnaire from medical and dental providers from across the Cook Children's Health Care System. Instead of the questionnaire, interviews were conducted with one to two medical and dental providers invested in community health prevention strategies, which was more time consuming, but still provided proper alignment to the study's theoretical framework. Another delimitation included cases across four very different groups or types of individuals within this multiple case study—parents, program staff, medical and dental providers, and community stakeholders. It would have been

easier to include cases from one specific group, such as cases only of parents or only of program staff. However, due to the diverse perspective that each type of case brought to the study, the selected groups were necessary to align the findings with the different levels of the study's theoretical framework. The final delimitation involved the absence of investigating the measurement or evaluation of impact between the community-based prevention strategies mentioned in this study. The study's purpose was to investigate alignment between the strategies, not assess the specific strategies' individual or overall effects. The researcher is aware that there are different levels of impact or effectiveness among community-based prevention strategies. Program or impact evaluation is one of many essential components when organizations or providers determine strategies to address childhood dental caries, obesity, and asthma; therefore, examining the effectiveness of strategies is consequential to warrant a study solely dedicated to that purpose through a quantitative or mixed methods research approach.

Conclusion

Due to a gap in the research regarding collaborative efforts around community-based prevention strategies addressing dental caries, obesity, and asthma during childhood, there is a need to investigate the intersectionality of these three health conditions through a multi-variate theoretical framework. This multiple case study design allows for the investigation of the parent, community health program staff, community stakeholder, and health care professional perspectives to determine where community-focused prevention strategies involving childhood dental caries, obesity, and asthma align with the Spectrum of Prevention framework. From the research design and questions, participants for each case were purposively selected to provide thick descriptions of their

experiences that allow for synchronization of multi-variate prevention efforts for dental caries, obesity, and asthma from a community-based strategies lens. The next chapter reveals the results and implications from this multiple case study.

CHAPTER FOUR

Results and Implications

Introduction

This research study used a multiple case study design to investigate the shared barriers and successes of community-health prevention strategies for dental caries, obesity, and asthma during childhood. A multiple case study design permitted the researcher to compare data from each case to explore how community health professionals can coordinate the approach to prevent dental caries, obesity, and asthma episodes during childhood through community-based prevention strategies (Yin, 2018). The multi-faceted examination within this multiple case study involved parents, community health program staff, medical and dental care providers, and community stakeholders using an overarching research question and four primary research questions—one primary question for each case. The decision to investigate a primary question for each case resulted from the unique perspective each case brought to this multiple case study. Purposeful sampling techniques ensured the participants in each case described a rich, inimitable view related to the central phenomenon of a collaborative approach to community-based prevention strategies for dental caries, obesity, and asthma episodes during childhood (Merriam, 2009; Patton 2014; Yin, 2018). Figure 3.2, unveiled in Chapter Three, depicts the overarching research question's relationship to the four primary research questions—resulting in one primary question for each case. The overarching research question was, where do community-health strategies that address childhood dental caries, obesity, and asthma intersect on the Spectrum of Prevention?

Table 4.1 reveals the individual primary questions for each case investigated and answered through the multiple case study results.

Table 4.1

Primary Research Questions for Each Case

Case	Primary Research Questions
Parents	How does the family environment influence a child's development or management of dental caries, obesity, and/or asthma?
Program Staff	What roles do program staff play in engaging families in community-based prevention strategies that address dental caries, obesity, and/or asthma during childhood?
Medical and Dental Providers	What roles do medical and dental providers play in promoting community-based prevention strategies that address dental caries, obesity, and/or asthma during childhood?
Community Stakeholders	What methods are used to rally community stakeholders around the prevention of dental caries, obesity, and/or asthma?

This chapter reveals that this case study identified potential coordination opportunities among community health strategies focusing on preventing childhood dental caries, obesity, and asthma episodes through the utilized research questions. After reviewing the participants and case description within this study, the presentation of this chapter's results unfolds from a reverse approach. The results begin with final qualitative data findings, answering the overarching research question guiding this study. Figure 4.1 depicts the results' presentation framed within this chapter's remaining paragraphs.

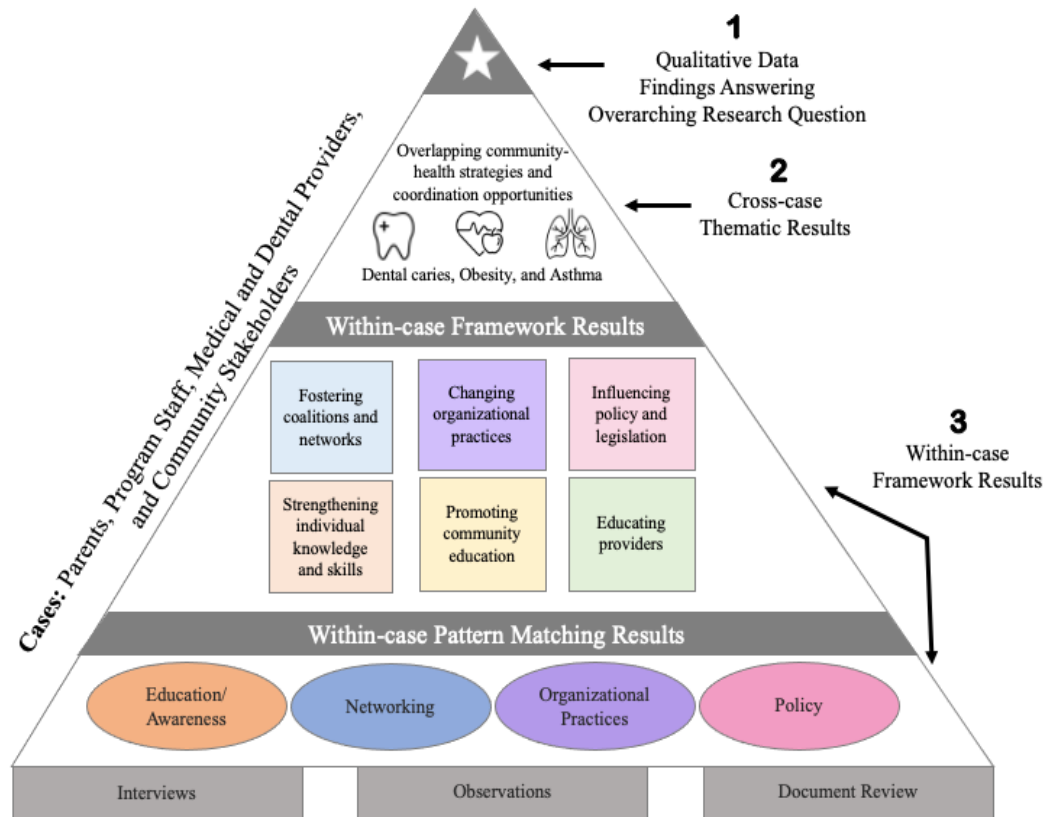


Figure 4.1. The reverse presentation flow of this multiple case study's results.

The presentation of findings first unveils the encompassing qualitative results, which answered the overarching research question from the cross-case thematic analysis. Secondly, the researcher characterizes the cross-case thematic analysis. Following the cross-case thematic analysis findings, the researcher explains the within-case framework analysis that stemmed from the pattern matching of data collection methods utilized with the four cases—parents, program staff, medical and dental providers, and community stakeholders.

As discussed in previous chapters, this case study's guiding theoretical framework was the Spectrum of Prevention. The six levels of the Spectrum of Prevention are synergistic and have a more substantial effect when used together (Cohen & Swift, 1999).

As evidenced in Chapter Two of this dissertation, a substantial relationship exists between dental caries, obesity, and asthma during childhood. Addressing these three health conditions through a more coordinated approach with community-health prevention strategies that align with the Spectrum of Prevention will achieve a more considerable impact.

Participants

An in-depth description of participant selection and sampling rationale appears in Chapter Three of this dissertation. This phase of the multiple case study focused on collecting interview data from parents, program staff, medical and dental providers, and community stakeholders. The researcher used “discretionary judgment instead of formulaic practices” for participant selection with this multiple case study (Yin, 2018, p. 59). Additionally, the researcher purposefully selected the type of cases within this study that aligned well with the study’s theoretical framework, the Spectrum of Prevention. Figure 4.2 below, first presented in Chapter Three, illustrates how the case selection within this study methodically supported the Spectrum of Prevention framework. Each selected case within this study can potentially align work around the prevention of dental caries, obesity, and asthma during childhood through the use of strategies supporting the Spectrum of Prevention framework. The alignment of community-based program staff, medical and dental providers, and community stakeholders could potentially support families in the prevention of dental caries, obesity, and asthma during childhood. The variety of experiences collected from parents, program staff, medical and dental providers, and community stakeholders clarified the need for multiple perspectives when

investigating the complex phenomenon of coordinating community-based prevention efforts of dental caries, obesity, and asthma episodes during childhood.

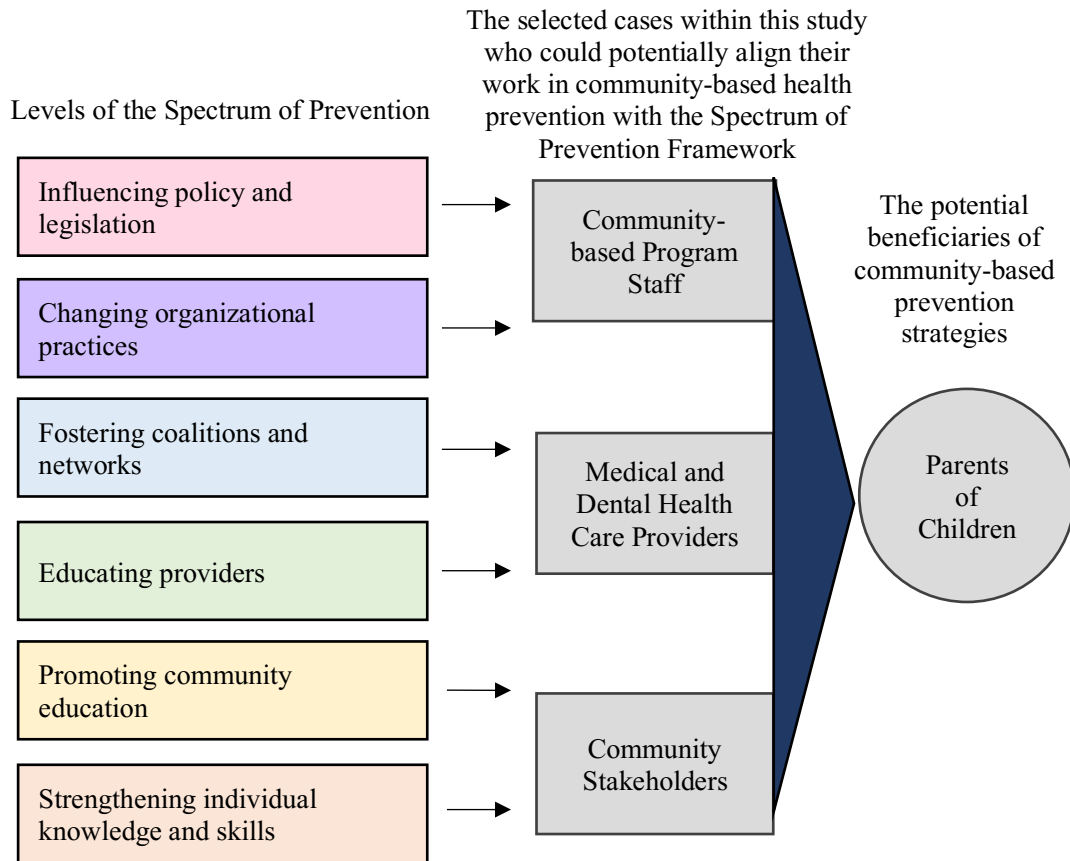


Figure 4.2. The levels of the Spectrum of Prevention framework and selected cases within this multiple case study.

The researcher interviewed 24 participants representing one of the cases within this study. Table 4.2 reviews the number of participants interviewed from each case and the type of program and health focus—dental caries, obesity, or asthma—they represented within this study. Although each interview discussed dental caries, obesity, and asthma, each participant’s background primarily represented at least one of the three health topics. Each participant’s primary background was important to ensure an even distribution of participants among the three health conditions. Essentially, medical and

dental providers have education and experience addressing all three health conditions, which is why their perspective was critical to this study.

Table 4.2

Participant Interviews by Case and Health Condition

Case	Primary health condition represented	Number of participants interviewed
Parents	Dental caries	2
	Asthma	1
Program Staff	Dental caries	4
	Obesity	3
	Asthma	3
Medical and Dental Providers	Dental caries	3
	Obesity and Asthma	2
Community stakeholders	Dental caries	2
	Obesity	3
	Asthma	1

Case Descriptions

The purpose of this study was to gain an understanding of multiple participant meanings and perspectives that included parents, community-health program staff, medical and dental providers, and community stakeholders. Successful health promotion and disease prevention strategies often require a systems approach, interdisciplinary collaboration, and a well-educated community to align prevention messages and practices (Cohen & Swift, 1999). To reflect the importance of collaborative, community-based strategies preventing dental caries, obesity, and asthma episodes during childhood, the case descriptions below reflect the deliberate design of participant selection for this

multiple case study—both the type of cases represented, as well as the individual participants within each case. For anonymity purposes, the cases below are described in aggregate form or in a general manner to protect personal identities.

Parents

The researcher interviewed three parents for this case study. The study purposefully sought the perspective of families of a racial minority or low income. The parents' view proved to enlighten the barriers they face with seeking community or clinical health services to prevent dental caries, obesity, or asthma episodes with their children. Due to a gap in the literature, this case study purposefully gained insight regarding the home environment and day-to-day struggles of these families regarding the prevention of childhood dental caries, obesity, and asthma. The first parent interviewed was an African American, single mother with two children. One of her children has regularly struggled with asthma episodes for most of the child's life. The other two parents were Latinx, and each parent had a child experiencing severe dental caries. The Latinx parents were non-native English speakers; thus, the researcher utilized the translation support of Spanish-speaking community health workers for the parents' interviews. All of these parents participated in a community-based prevention program within the past 12 months.

Program Staff

The researcher interviewed ten community-health program staff members, all of whom work in the Center for Children's Health at Cook Children's Health Care System. The staff members selected for interviews work within programs for families and communities that address one of the three health conditions—dental caries, obesity, or

asthma. Program staff provided insight into the role staff play in engaging families in community-based prevention programs. The interviewed program staff shared barriers and successful strategies they have experienced in working to provide communication, program services, program management, and creating or strengthening community partnerships within their respective program.

Medical and Dental Providers

The researcher interviewed three dentists and two pediatric primary care physicians for this case study. All of these medical and dental providers work for or with Cook Children's Health Care System in some capacity. All three of the dentists not only treat children in a regular dental office setting, but they also volunteer for the Save a Smile dental program led by the Center for Children's Health within Cook Children's. Save a Smile provides free dental treatment in the volunteer dentist's private dental office setting to underserved children in local Title I elementary schools. One of the physicians interviewed provides direct patient care in a primary care setting. The other physician interviewed also provides direct patient care in a primary care setting and oversees other physicians providing health care for children in clinics that primarily serve families of a low-income or racial minority. The interview data collected from these participating medical and dental providers were critical to illuminating both the successes and challenges they face connecting with children, families, and other community partners—particularly from the view of dental caries, obesity, and asthma episodes.

Community Stakeholders

The researcher interviewed six community stakeholders for this research study. Four of the six of these interview participants are current coalition or advisory committee

members of the coalitions or programs led by the Center for Children's Health within Cook Children's that address either dental caries or obesity during childhood. The remaining two stakeholders are fervent community partners working in the realm of obesity prevention and asthma education and awareness programming with families. The community stakeholders' crucial viewpoint identified opportunities for alignment with community organizations working toward the common goal of preventing dental caries, obesity, or asthma episodes with children. This case study's theoretical framework, the Spectrum of Prevention, connects explicitly to the importance of designing community-based prevention strategies to increase and sustain community capacity to improve health. These interviews proved to postulate an understanding of what motivates and rallies community stakeholders around preventing dental caries, obesity, and asthma and enlightened some of the commonalities among the three health conditions.

Qualitative Data Findings with Overarching Research Question

Guided by the overarching research question, this multiple case study investigated the intersection of community health prevention strategies between childhood dental caries, obesity, and asthma on the Spectrum of Prevention. After completing a within-case framework analysis and a cross-case thematic analysis, the researcher discovered an overlap among strategies concerning communication methods, meeting basic needs, relationship building, and provider and organizational education. After categorizing the data within each case according to the Spectrum of Prevention framework, the researcher applied a cross-case thematic analysis to determine overlap among the community health strategies provided by collected data from interviews, observations, and document review. Figure 4.3, first presented in Chapter Three, revisits the researcher's process to

ascertain an intersection of findings among the cases—and ultimately, dental caries, obesity, and asthma.

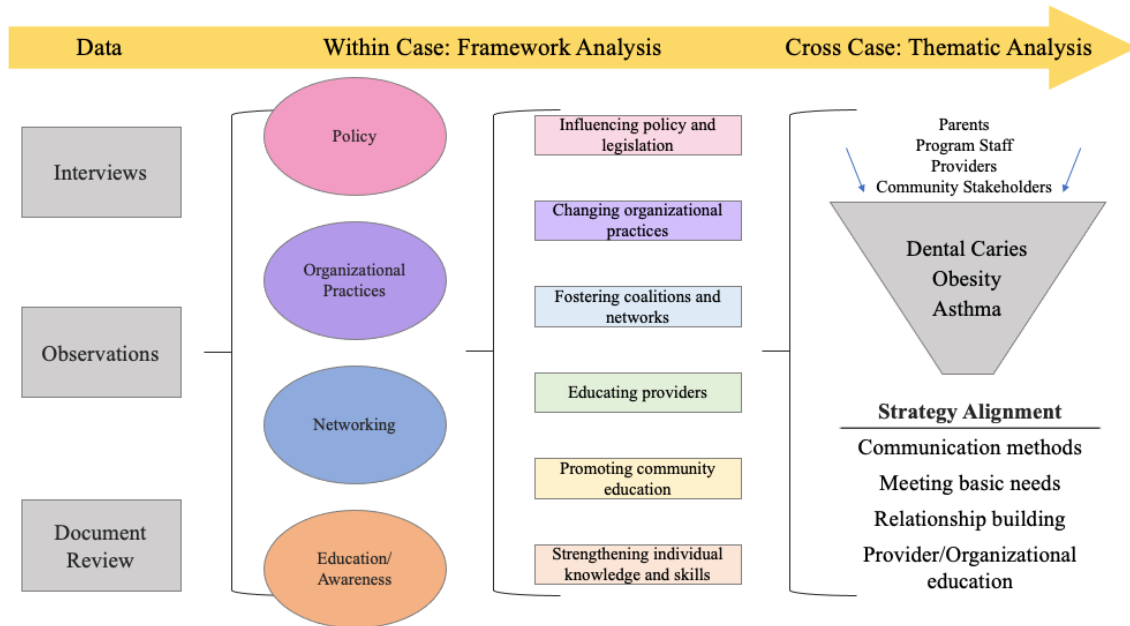


Figure 4.3. A summary of the data collection and analysis methodologies within this multiple case study highlighting the qualitative data findings.

In keeping with presenting the findings from a reverse approach, further description of the cross-case thematic analysis is below, followed by the within-case framework analysis and discussion of the primary research questions guiding this research study.

Cross-Case Thematic Analysis

Corresponding to the data reduction procedures for this multiple case study, the researcher compared all four case groups—parents, program staff, medical and dental providers, and community stakeholders—through constant comparison analysis. The cross-case thematic analysis organization examined and compared the interview results of the four case groups and subsequently denoted the health condition the case group

member represents—dental caries, obesity, or asthma. Next, the analysis compared emerging themes from the participant as observer observations and documents reviewed for this research study, continuing the secondary perspective of dental caries, obesity, and asthma. The analysis concluded with a final comparison of emerging themes across the topics of dental caries, obesity, and asthma to determine the qualitative data findings within this case study previously presented in Figure 4.3.

Themes Across Case Groups

Similar themes emerged across the four cases within this multiple case study—parents, program staff, medical and dental providers, and community stakeholders. Table 4.3 provides an overview of these similar themes, which are communication methods with families, communication methods across the community, meeting basic needs, trust and relationship building, and provider and organizational education. The sub-sections below explain the details regarding each theme.

Table 4.3

Themes Among Case Groups

Participants	Communication Methods with Families	Communication Methods Across Community	Meeting Basic Needs	Trust and Relationship Building	Provider/ Organizational Education
Parents	X			X	
Program staff	X	X	X	X	X
Medical and Dental Providers	X	X	X	X	X
Community Stakeholders	X	X	X	X	X

Communication methods with families. All four cases within this study spoke about texting as a positive method for program staff and health and service providers to use with families. Parents indicated texting is a preferred method of communication due to their busy schedules. Parents shared text messages sent by programs and health service providers are easier to read, respond and revisit during the day when the parent's schedule is more available. Program staff, medical and dental providers, and community stakeholders also indicated that text messaging seems to garner a response quicker and more often from parents regarding program and health services and appointments. In addition, program staff, medical and dental providers, and community stakeholders conveyed the necessity of different communication methods based upon the purpose and nature of the information. When providing program or health services—situations such as beginning a new relationship, explaining consent forms or documents, sharing sensitive details with a parent regarding their child's health or home environment, or discussing their financial situation are better suited for a conversation by phone or face-to-face. Communication with parents regarding these previously mentioned types of situations aligns with the first level of the Spectrum of Prevention emphasizing the importance of “strengthening individual knowledge and skills” (Cohen & Swift, 1999, p. 204–206). Program staff, providers, and stakeholders also all shared the challenges of maintaining contact with the families they engage—highlighting the transient nature of families of a low-income, such as frequent address changes and phone disconnections. The challenges of maintaining contact with families of a low-income connects to the literature revealed in Chapter Two around the significance of family dynamics with preventing childhood dental caries, obesity, and asthma (Beck et al., 2014; Chi et al., 2014; Hernandez &

Pressler, 2015; Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Tate et al., 2015).

Communication methods across the community. Program staff, providers, and stakeholders recognized and asserted the differences in communication methods when sharing information across the community or engaging providers and community organizational partners versus communicating directly with families. When promoting prevention messages and community education in general, these three case groups all strive to begin as upstream as possible, such as promoting messages that start during pregnancy or with a child's birth. The approach of starting early with prevention messages and strategies is also well documented in the literature shared within Chapter Two (Collins et al., 2016; Ismail, 1998; United States Department of Health and Human Services, 2000). Another common theme among community messages recommended taking an asset-based view and highlighting behaviors that the intended audience is doing well, rather than communicating from a deficit-based approach. When these three case groups share with other community partners, providers, and stakeholders, they recognize the oversaturation of information many individuals manage and strive to be as clear and consistent with messaging as possible. It was also noted by these three case groups that communicating the value and recognizing the work and effort everyone is doing within the community is essential to creating, building, and strengthening partnerships. The notable finding highlighting how to build and strengthen community partnerships supports the literature noted in Chapter Two expressing the need for multi-variate prevention efforts among different community sectors for preventing childhood dental

caries, obesity, and asthma. (Crawford et al., 2013; Oberg et al., 2016; Taylor et al., 2016).

Meeting basic needs. There is a shared recognition that families engaging in community-based programming and the families of low-income and Medicaid recipients engaging with medical and dental providers are often operating in crisis management mode. Program staff, medical and dental providers, and community stakeholders not only all recognize this but expressed how crucial it is to work to meet a family's basic needs first before sharing education or extensive services. A lack of food security among families they engage with was an everyday basic need expressed by these three case groups. When a family is hungry, they are not as able to learn and process new information. These case groups also imparted that the families they encounter often require multi-level system support and community resources. It is imperative that programs and service providers have an appreciable knowledge of the community's resources to share with and refer to their program and patient families. There is evidence within the supporting literature noted in Chapter Two that there are social factors that significantly impact the prevalence of dental caries, obesity, and asthma during childhood, such as food insecurity and a lack of social and neighborhood capital (American Academy of Pediatrics, 2016; Beasley et al., 2015; Beck et al., 2014; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Kelley & Kearney, 2018; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Williams et al., 2009). Program staff and community stakeholders shared that case management with families is a critical aspect of community-based prevention strategies. Community-based prevention strategies should include efforts regarding home visiting or case management, which the literature included

in Chapter Two imparts as an effective community-based prevention strategy for childhood dental caries, obesity, and asthma (American Academy of Pediatric Dentistry, 2013; Haire-Joshu et al., 2018; Martin et al., 2016; Woods et al., 2012). Medical and dental providers mentioned that they are unable to meet all the needs they are seeing with families and that awareness of community resources and bridging community partnerships are paramount.

Trust and relationship building. All four case groups voiced the magnitude of building trust and relationships. Parents shared the importance of program staff members, service providers, and health care providers taking the time first to listen and get to know the parents. Parents would like the acknowledgment that they “know their child best” and can bring some insight into the conversation when discussing their child’s needs with staff and providers. Parents desire trust from programs and health care services. Program staff, medical and dental providers, and community stakeholders all reiterated the eminence of building trust and relationships with families, other organizations and partnerships, and with the community. There is an unmistakable higher prevalence of dental caries, obesity, and asthma among children and adolescents in racial minority groups and those living in low-income families (Akinbami, 2006; Akinbami et al., 2016; Dye et al., 2015; Dye et al., 2017; Hales et al., 2017; Ogden et al., 2018; United States Department of Health and Human Services, 2000). Building trust with families, particularly families of a racial minority or low-income, is essential for authentic engagement with a family in community-based prevention strategies addressing dental caries, obesity, or asthma.

Staff members and community stakeholders shared that “community partnerships are critical to the success of a program.” The more successful partnerships among program staff, medical and dental providers, and community stakeholders prioritize communication, education, and acknowledgment among the various community members. These three case groups verbalized that clear, open, and honest communication builds stronger partnerships with one another. They also said that their more successful partnerships had taken the time to educate one another about the logistics of how they provide programming or services to families and that this education requires ongoing maintenance in partnerships. Recognition and acknowledgment of everyone working to make a difference in children and families’ lives within their community also resonated from program staff, medical and dental providers, and community stakeholders. Finally, these three cases shared that they must listen to families, one another, and the community as a whole and not assume they always know the needs of others but stop and listen to the community. Listening, showing respect, and recognizing the involvement of others are critical elements to building and strengthening relationships with other community organizations, and support the fourth level of the Spectrum of Prevention theoretical framework “fostering coalitions and networks” (Cohen & Swift, 1999, p. 204–206).

Provider and organizational education. Program staff, medical and dental providers, and community stakeholders all discussed the need for and impact of providing education to other programs, providers, and organizations. Addressing the prevention of dental caries, obesity, and asthma during childhood requires various strategies, providers, organizations, and systems, as noted from the literature in Chapter Two (Crawford et al., 2013; Oberg et al., 2016; Taylor et al., 2016). The notion of multi-

variate prevention efforts through interdisciplinary collaboration also connects to the Spectrum of Prevention framework suggesting this type of work “delineates a systems approach to prevention practice” (Cohen & Swift, 1999, p. 206). Childhood dental caries, obesity, and asthma are complex health conditions requiring a multitude of services for families (Crawford et al., 2013; Kuo et al., 2012; Leppin et al., 2018; Newton, 2012; Oberg et al., 2016; Taylor et al., 2016). An essential aspect of working within a community is to educate the individuals and organizations all working to improve the health of children and families. This education may include elements such as program or provider services, available community resources, proper prevention message alignment, networking opportunities, and accurate and aligned health prevention education. The third level of the Spectrum of Prevention framework, “educating providers,” reaffirms a mechanism for keeping all community partners more aware of the community resources available for families (Cohen & Swift, 1999, p. 204–206).

Analysis from Observations and Document Review

Observations and document reviews supported some existing strategy overlap across the prevention efforts for dental caries, obesity, and asthma. Table 4.4 provides an overview of overlapping strategies identified from observations and reviewed documents as they align with the Spectrum of Prevention framework (Cohen & Swift, 1999) between dental caries, obesity, and asthma prevention programs and coalitions working to prevent or mitigate these conditions during childhood. Common themes aligned with all six levels of the Spectrum of Prevention found among the observations and reviewed documents. The results of the observations and document review supported the common themes found within the cross-case analysis.

Table 4.4

Themes from Observations and Document Review Aligning with Framework

Levels of Framework	Discovered Themes
Strengthening individual knowledge and skills	Engaging and educating families, community stakeholders and health care providers to improve children's health
Promoting community education	- Distributing resources and supplies to families and community members - Providing intentional awareness messaging through various communication methods
Educating Providers	- Facilitating educational opportunities for health care providers (dental caries and asthma only) - Educating community professionals and service organizations
Fostering coalitions and networks	- Facilitating or coordinating a community coalition or collaboration - Working to expand coalition membership to include diverse representation among community sectors
Changing organizational practices	- Strengthening existing relationships with community leaders, stakeholders, and organizations - Aligning prevention messages with other community organizations and medical and dental providers
Influencing policy and legislation	- Creating awareness among local government officials regarding childhood dental caries, obesity, or asthma - Building or strengthening relationships with local government officials to collaborate or champion the prevention of childhood dental caries, obesity, or asthma

Within-Case Framework Analysis

Each case within this study conveyed equally unique and critical insight to discovering the intersectionality of barriers and successes for addressing dental caries, obesity, and asthma. The cases also highlighted potential areas for strategic collaboration

among these three health conditions when cross-examined, as explained in this chapter's previous sections. Upon examining each individual case, interview participants consistently postulated information for each of the three health conditions—dental caries, obesity, and asthma. The researcher intentionally kept the within-case framework analysis aligned according to the categories of dental caries, obesity, and asthma to ultimately answer the overarching research question upon completing all analyses for this case study. As presented earlier in Chapter Four, the overarching research question guiding this case study inquired about the intersection of community-based prevention strategies that address childhood dental caries, obesity, and asthma on the Spectrum of Prevention.

In addition to documenting which of the three health conditions provided the data, it was crucial for early segmentation of the data to classify the description within each case according to the theoretical framework's different levels. The four categories that emerged upon initial framework analysis were education and awareness, networking, organizational practices, and policy. These categories are broad groupings of the six levels of the Spectrum of Prevention framework. The complete six levels of this framework include "strengthening individual knowledge and skills," "promoting community education," "educating providers," "fostering coalitions and networks," "changing organizational practices," and "influencing policy and legislation" (Cohen & Swift, 1999, pp. 204–206). The remaining paragraphs within this section further clarify the framework analysis results within each case which kept the overarching research question for this study in purview by segmenting the data according to dental caries, obesity, and asthma. Table 4.5 below specifies the broad theoretical framework

categories identified within each case. The framework categories in the table below are those that aligned with dental caries, obesity, and asthma in this study.

Table 4.5

Framework Categories from Each Case

Participants	Education and Awareness	Networking	Organizational Practices	Policy
Parents	X		X	
Program Staff	X	X	X	
Medical and Dental Providers	X	X	X	X
Community Stakeholders	X	X		X

Further review included in Table 4.6 below overlays the thematic analysis presented in the cross-case analysis section with the complete within-case framework analysis categories. Essentially, Table 4.6 combines Tables 4.3 and 4.5 to demonstrate how the within-case framework results supported the cross-case thematic results. The first column in the table shows the levels of the theoretical framework used in the within-case analysis. The remaining column headers are the cross-case analysis themes identified. Within the table, the case abbreviation shows where the within-case and cross-case analysis aligned. Table 4.6 uses the abbreviations of P for parents, PS for program staff, Prov for providers, and CS for community stakeholders to denote which case aligned with the themes and a particular level of the Spectrum of Prevention theoretical framework. The subsections following Table 4.6 present the more in-depth within-case results and highlight literature alignment from Chapter Two.

Table 4.6

Themes and Framework Alignment from Each Case

Levels of Spectrum of Prevention Framework	Communication Methods with Families	Communication Methods Across Community	Meeting Basic Needs	Trust and Relationship Building	Provider/ Organizational Education
Strengthening individual knowledge and skills	P, PS, Prov, CS		PS, Prov, CS	P, PS, Prov, CS	
Promoting community education		PS, Prov, CS			
Educating Providers			PS, Prov, CS		PS, Prov, CS
Fostering coalitions and networks				PS, Prov, CS	
Changing organizational practices					PS, Prov, CS
Influencing policy and legislation					

Parents

After coding and categorization, the parent case group predominantly provided insight into the education and awareness category. Additionally, the interview data referenced organizational practices experienced by the parent. More specifically, from these framework categories of education and awareness and organizational practices, the parent interview data analysis gave early insight into how best to approach education with parents, preferred communication methods and why, and an opportunity to broaden communication to include the home environment and parent behavior choices. Across the

three health conditions of dental caries, obesity, and asthma, this information ultimately led to building trusting relationships with parents as an essential component among community-based prevention strategies.

Seek first to learn from the parent. The parent representing recent participation in the community-based asthma program, Healthy Homes, led by the Center for Children's Health, felt listened to and heard by the program staff. The parent went on to say how feeling heard was an essential element in her staying engaged the entire length of the program and learning helpful information for preventing her daughter's asthma episodes. The parent shared the community health worker with the asthma program approached educating her by first learning some things from her, as the child's mother. The parent explained, "I believe just because someone is a program staff person or provider doesn't mean they are always right. I know my child best. I listened to the community health worker because she first listened to me." Another parent who has a child participating in the community-based dental program, Save a Smile, spoke about how important it is to feel respected. The parent stated her view of a healthy community is "one where we help and respect each other." These parents' reflections speak to the importance of program staff and providers taking the time to listen and build a respectful relationship with the parent before educating them regarding their child's health. As highlighted from the literature in Chapter Two, apparent health disparities exist for children and adolescents in racial minority groups and those living in low-income families regarding the prevalence of dental caries, obesity, and asthma (Akinbami, 2006; Akinbami et al., 2016; Dye et al., 2015; Dye et al., 2017; Hales et al., 2017; Ogden et al., 2018; United States Department of Health and Human Services, 2000). The insight provided by the parents interviewed in

this study, who represent families of a racial minority and low-income, support the cruciality of programs, providers, and service agencies taking the time to listen to families first and foremost.

The why behind texting. All three parents spoke about their hectic households. The parents shared how texting is their preferred communication method from program staff and medical and dental providers. One parent shared that due to the COVID-19 pandemic, her school-aged children are learning virtually at home. This parent is a single mother who works “long 9-to-12-hour days,” further stating, “my day begins at 3:00 a.m.” Instead of going home at the end of her twelve-hour shift and taking a nap or resting, she explained, “I finish my first job and then go home to my second job, which is taking care of my children and helping them with their virtual schooling.” She works the early shift so she can go home to help her children with their schoolwork. When interviewed, the mother said, “I had to rush home from work today to make sure my daughter was able to get online to complete a test that is due today.” Reflecting on her busy life, the mother said, “this is why I prefer texting from program staff and doctor offices; when they text me, I get the message and can read it when I have a moment to sit down, process it and respond.” This parent explained that because of her busy day and work schedule, she often misses phone calls but prefers text messages because the information is received, and she can also go back and re-read it when needed. Hearing from parents that they most often prefer text messaging communication is helpful, but even more noteworthy is the parent’s account of her hardworking spirit to provide the best for her children. The substantial daily efforts to care for her children that the parent of this asthma program recounted also correspond with the literature noted in Chapter

Two indicating the prevalence of dental caries, obesity, and asthma among children is often a lack of understanding or education of the parent, as well as social factors preventing the necessary access to care (Beck et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Yang et al., 2016). Most often, parents do not purposefully overlook or neglect their child's health. There is a lack of awareness by parents regarding dental caries, obesity, and asthma prevention efforts for children. There are also strong, social, economic, and environmental determinants influencing the health of children for dental caries, obesity, and asthma (American Academy of Pediatrics, 2016; Beasley et al., 2015; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Kelley & Kearney, 2018; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014). In this case study, understanding more about the parent's full daily life and why text messages are a more helpful way to communicate with them is meaningful for program staff and health care providers.

The home environment. The final notable within-case finding from parents referenced the differences from the interviewed parents regarding how the home environment impacts their child's health. All three parents shared a different viewpoint in response to this interview question. The parent representing the asthma program commented on how she believes her home environment impacts her child's health. This parent who recently participated in the community-based asthma program shared, "just about everything within our home impacts my child's health, from cleanliness, cleaning products, smell good products, and even food, physical activity choices and my behaviors as a parent." This parent's reflections are illuminating for a few reasons. The first reason is that upon recent completion of a community-based program for her child's asthma, the

parent said listening to and learning from the prevention education provided by the community health worker in that program. Secondly, this parent clearly understands the impact of the home environment and the parent's behaviors on her child's health—which identifies a more holistic view and understanding of the magnitude of a parent's behavior choices on their child's health, particularly from the perspective of dental caries, obesity, and asthma. The second parent interviewed responded to this question by sharing that their family needs to do better with their physical health and well-being, stating, "we need more physical activity." When asked how the home environment impacts their child's health, the third parent said, "I don't believe it does." The second and third parents' responses gave valuable insight, just as the first parent's reaction. The second and third parents' views postulate the need for community-based prevention programs to expand education to include the home environment, especially for programs looking to coordinate prevention education around dental caries, obesity, and asthma. This need to expand education into the home environment across dental caries, obesity, and asthma corresponds well with two of the six levels of the theoretical framework for this study, the Spectrum of Prevention (Cohen & Swift, 1999). These two levels of the framework recommend prevention strategies that strengthen individual knowledge and skills and promote community education, both of which align well with expanding education to include the home environment. The literature presented in Chapter Two also suggests home visiting strategies as an effective approach for the prevention of dental caries, obesity, and asthma (American Academy of Pediatric Dentistry, 2013; Haire-Joshu et al., 2018; Martin et al., 2016; Woods et al., 2012).

Program Staff

Upon initial coding and categorization, the program staff group provided insight into the categories of education and awareness, networking, and organizational practices—particularly across the three health conditions of dental caries, obesity, and asthma programming. There were some insights around policy, but the policy theme was not as strong as education and awareness, networking, and organizational change. Among the three themes of education and awareness, networking, and organizational practices—highlights included educating families in crisis mode, community partnership building, and recognizing the differences in communication methods. These highlights are explained in more detail in the following paragraphs within this section.

Educating families who are currently in crisis mode. The program staff strongly echoed a critical insight that most families they engage within community-based prevention programs are often maneuvering through crisis management mode. Program staff reflected, “many of these families are struggling with low income and trying to meet other basic needs,” “our program families are dealing with other priorities and going to the dentist isn’t one of them.” A third staff member commented, “We often see what other stressors are happening in that family’s life that might be affecting their ability to care for their child’s asthma.” Recognizing that these families may be in crisis mode can substantially impact program engagement and education.

Program staff directly providing case management to families noted that they must first address a family’s basic needs before giving any education to that family. A family struggling with a lack of food security cannot take in prevention education around their child’s health if the family does not have adequate food to eat. One staff member

noted, “A parent is not listening to you if they are hungry and have no food for their kids.” As presented in Chapter Two, the social determinants of health which are factors such as housing conditions, neighborhoods, access to fresh foods, and access to health services, among others, can profoundly impact the prevention of health conditions (WHO, n.d.-a). Social determinants, such as families struggling with a low-income and food insecurity, can directly lead to an increase in dental caries, obesity, and asthma episodes among children (Beck et al., 2014; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Williams et al., 2009). Understanding a family’s current social situation and meeting basic needs is essential for community-based prevention programs to consider within community-based prevention strategies.

Community partnership building. Across all program staff interviewed, whether the staff members work more with coalition coordination, partner facilitation, or providing direct services to families, a resounding theme of the importance of community partnerships resonated. As stated in Chapter Two, the literature shows dental caries, obesity, and asthma during childhood are complex, chronic conditions often resulting in multi-variate prevention efforts (Crawford et al., 2013; Oberg et al., 2016; Taylor et al., 2016), which is why the researcher selected the Spectrum of Prevention framework as the guiding theoretical framework for this case study (Cohen & Swift, 1999). Community-based prevention strategies addressing dental caries, obesity, and asthma for children and families require many community partners to address system-level considerations, which connects to the purpose of the Spectrum of Prevention framework supporting the need for a collaborative, systems-based approach (Cohen & Swift, 1999). Program staff noted they

work with many different community partners in ways such as referring families to other organizations for different social needs or working to engage community partners in goal or strategy alignment to extend the reach of a coalition of members or partners. One staff member noted, “One key strategy our coalition employs is to encourage membership from local community leaders to organizations to all members of a community to come together and support our common goals.” Networking to build, strengthen and maintain community partnerships takes intentional effort, and it is vital for program staff to “stay connected to your people” when developing and maintaining community relationships. “Fostering coalitions and networks” is also the fourth level of the Spectrum of Prevention framework guiding this case study and connects to what the program staff noted in this research regarding the importance of networking and maintaining community partner relationships to achieve a common purpose (Cohen & Swift, 1999, p. 204–206).

While the program staff noted the importance of community partnerships within their programs, three types of community organizations that resonated the most across dental caries, obesity, and asthma programming—K–12 school districts, food pantries, and health plans and Medicaid insurers. Program staff promptly recognized K–12 school partnerships. Staff members stated, “schools are a big partner,” “school nurses are an essential partner to our program,” “anyone working within a school district is always great to bring to the table,” and “finding a school champion is key.” Staff members also acknowledged the heavy workloads many school professionals face today and how an expectation for school professionals to partner or participate in every community-based program or strategy is unrealistic—noting, “coordinating with schools is essential, but not always easy.”

Working with food pantries, both as a current strategy and as something the program staff felt they need to do more, both emerged throughout the program staff interviews. Staff members working directly with families noted, “many families are requesting food pantry resources.” Other staff members reflected, “there’s a missed opportunity to provide education to families who are recipients of food pantries” and “we need to work more at making sure our obesity prevention education aligns with other community initiatives, especially around food insecurity and related policy work.” Food insecurity is also a specific social factor noted in the literature from Chapter Two that can directly lead to an increase in dental caries, obesity, and asthma episodes among children from families of a low income (Beck et al., 2014; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Williams et al., 2009). From the perspective of this case study, due to the many families program staff encounter suffering from a lack of food security—food pantries and food banks may provide a vital link to meeting a family’s basic need and provide a mechanism to deliver education or other program services in some way, addressing the prevention of dental caries, obesity, and asthma episodes.

The final type of community partnership reverberated within this emergent theme was the need to partner with health plans and Medicaid insurance providers. Staff indicated, “we need to work more with Medicaid provider staff and caseworkers, we share many of the same families,” “health plan navigator staff are another avenue to work with families struggling with asthma,” “wish we could partner with Medicaid provider staff to provide better follow-up and follow-through with these families,” and “working more with health plan staff would give us another way to get to these families needing

our help.” These staff reflections about working more with health plan and Medicaid insurer staff resounded across programs providing dental caries, obesity, and asthma prevention strategies. The low-income families that the program staff engages in their programming are families that either have or qualify for Medicaid. The program staff members interviewed connect these families to health care providers that accept Medicaid for dental and medical care. Partnering more with health plans and Medicaid insurer staff members could represent another level of support, education, and follow-up with these families, and is another way to support multi-variate efforts through interdisciplinary partnerships as suggested from the literature in Chapter Two (Crawford et al., 2013; Kuo et al., 2012; Leppin et al., 2018; Newton, 2012; Oberg et al., 2016; Taylor et al., 2016).

Recognizing the difference in communication methods. Not only did communication methods commonly emerge from program staff interviews, but particularly staff communicated the importance of acknowledging the need for different types of communication methods dependent upon the nature of the message and intended audience. Staff members reflected that those working directly with families often communicate through the phone—via phone calls or text messaging. Staff indicated that “texting seems to work best with families” when communicating, and “we get a quicker response from families through texting.” Staff members went on to say, “if it’s a quick message or reminder, text messaging works best.” However, due to the nature of the information staff may need to communicate with families, they noted, “we need permission to text a family and are not able to text them until they enter the program, and we establish a relationship with them.” “If I’ve never met the family, I try to call or meet

them face to face first.” Another program staff member noted, “with families, the type of communication method we choose is also based on the sensitivity or seriousness of the information we may need to discuss.” The program management echoed if the staff is enrolling the family in the program or, “if staff members need to discuss information relevant to asthma triggers, such as the cleanliness of a family’s home, that type of information must be communicated carefully, in person or over the phone and in a non-shaming way.” Tailoring the information for families is also critical, with staff reflecting, “it’s very important to us to make sure that we are providing the most relevant information catered to their individual situation in a way that they’re going to understand.” The purpose and nature of the information communicated are vital to determining the best method for families, and beneficial to recognize from the “strengthening individual knowledge and skills” and “promoting community education” levels of the Spectrum of Prevention framework (Cohen & Swift, 1999, p. 204–206). Community-based prevention strategies aimed at communicating and providing education to families must reflect on the most effective method for families to receive and process the intended message and information.

When communicating with partners or promoting community messaging and awareness, program staff also consider the method and audience. Communication with community partners needs to be clear and concise. Community messages should also be short, clear, and to the point. Staff members shared, “everyone seems to be bombarded with information,” “we need to think through how to make our messaging eye-catching amongst a sea of messages competing for attention,” and “we must distill and make our information relevant to our intended audience.” While staff members mentioned methods

such as social media, emails, community awareness campaigns, and other forms of communication, the central theme was more about the level of thought and coordination it takes “to get the intended information across, regardless of the method or vehicle used to communicate.” This notion of selecting the best possible communication method connects to the two levels, “promoting community education” and “educating providers,” within the Spectrum of Prevention theoretical framework (Cohen & Swift, 1999, p. 204–206). Communicating education information across the community and with providers would most likely require tailored information that is clear, concise, and delivered in the most thoughtful way possible.

Medical and Dental Providers

The with-in case coding and categorization from medical and dental providers postulated understanding into the themes of education and awareness, networking, organizational practices, and policy. Specifically, within these emergent themes, health care providers illuded to the importance of starting early with families, the challenges to and lack of follow-through with families, and the potential of policy, particularly organizational and associational policies. The following paragraphs within this subsection express the more detailed information around the emergent themes.

The importance of starting early. Presented by both the dental and medical providers interviewed, the importance of starting early with families regarding prevention education resonated distinctly. Starting early with prevention education also aligns with the literature presented in Chapter Two, which iterated the importance of beginning prevention education and strategies with families as early as possible in the child’s life (Collins et al., 2016; Ismail, 1998; United States Department of Health and Human

Services, 2000). Providers interviewed for this research reverberated, “I strive to make an impact on a patient from a young age,” “if families don’t teach and impart healthy behavior choices from a young age, it’s much harder to prevent or redirect unhealthy habits later in the child’s life,” and “prevention is key to instill good behaviors and practices early on with a patient.” One primary care physician noted, “I try to do a lot of nutrition education on the front end because if you wait and the child is older, it is much harder to change unhealthy behaviors.” Many providers interviewed also spoke about a successful strategy they use to support the importance of instilling healthy behaviors with their patients is speaking directly to the child. When parents bring their child to a medical or dental provider, it is essential to educate the parents. However, providers interviewed communicated how beneficial it is to speak directly to the child with educational information once they are old enough to comprehend the prevention messages. The providers reflected, “the key to this is to engage the child in the prevention education,” “when educating the family, I’ll talk directly to the child,” and “once the child is around six or seven years of age, I’ll set goals directly with the child.” The providers went on to explain how “kids need a sense of control,” especially during a medical or dental appointment. For primary care physicians and dentists to provide “family-centered care,” it is crucial to include the child in conversations and prevention discussions.

Challenges to and lack of follow-through with families. The dental and medical providers interviewed for this research study shared challenges with providing follow-through with families and at times there is a lack of follow-through with families regarding health prevention services. Providers communicated how continual guidance and “hand-holding” with families while navigating the health care system is imperative,

particularly for low-income or non-native English-speaking families. Further reflection from the medical and dental providers interviewed regarding support for families revealed a typical “lack of follow-through with families,” but admitting the “limited amount of time” providers often have with individual families and the amount and depth of support families of low-income often need is “overwhelming.” One provider noted,

Time is a significant barrier. My well-check visits with patients are 20 to 30 minutes which is longer than most, other offices have 10 to 15-minute spots for well visits. Even the 20 to 30-minute allotment is a big barrier, families come with a list of their own things they want to talk about, and then with the limited time left, I must select what is most crucial to discuss with the family and child.

Other providers continued to reflect that the need for social services for the families they see in their practices is tremendous. As previously noted in Chapter Two, the literature strongly supports the overwhelming impact of various social determinants on the health of children, particularly with dental caries, obesity, and asthma (American Academy of Pediatrics, 2016; Beasley et al., 2015; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Kelley & Kearney, 2018; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014). For providers, knowing all the potential community resources and referrals is too much at times, and community resources are also ever changing. Providers do their best to educate themselves and their staff on the community resources to share and provide with the patients and families within their practice. Still, they admittedly feel they wish they could keep up with these available resources more fervently. “I strive to continue open lines of dialogue and communication between clinical and community programs and resources, even if just within Cook Children’s, to help meet all the needs of these families.” In connection to the third level of the Spectrum of Prevention framework, “educating providers” (Cohen & Swift, 1999, p. 204–206), it is essential to help keep

medical and dental providers and their staff members “up to date on the community resources” by communicating and providing education on these resources to the providers and their staff.

The potential of policy and continued education. Providers noted that within the practice of dentistry and medicine, associational and organizational policies play an essential element in guiding their practice. Providers noted that “governing bodies dictate board certification” and “more policy and continued education regarding interdisciplinary relationships could help build and strengthen professional relationships and practices.” One area of continued education and an opportunity for stronger interdisciplinary relationships is between medical and dental providers. “Communication is important between service providers, but also challenging.” Particularly from the lens of improving health outcomes at the community or population level, “it is difficult to share outcomes.” Providers reflected, “data sharing is very challenging for many reasons,” and “everyone is working in a different database, and those do not always talk to one another.” Even when medical and dental providers are working under the same organization, “there are numerous challenges when trying to connect and engage with other providers, but we need more continued education for providers, particularly dental education.” In alignment with “changing organizational practices” and “influencing policy and legislation” of the Spectrum of Prevention framework (Cohen & Swift, 1999, p. 204–206), providers in this study indicated they are protocol and policy driven, especially with clinical guidelines, but “there is room to grow and expand on the overlap with policy manuals for providers.”

For clinical medical and dental providers, community partnerships and organizational involvement might provide an arena for learning more about available

community resources, providing continued education, and encouraging interdisciplinary relationships, but there are challenges for increased participation. When reflecting on medical and dental providers' involvement in volunteering their time and expertise in community-based prevention strategies, such as health-focused coalition work, providers discussed time and mental-fatigue challenges. One of the providers noted,

Time is a huge barrier to becoming involved in community coalitions and programming. I have little to no time in my daily schedule. My schedule is regimented from when I wake up and get my family ready for the day, while at work, and until I go to bed. I often do not take a lunch at work. I really have no room for extra in my daily routine. Virtual meetings with Zoom make it easier to attend meetings from my office, but it's still challenging when the work never stops.

Along with a lack of time, providers shared that mental fatigue can sometimes prevent them from being more involved in community-based coalitions and programming. The providers noted that “the expectation of being on all the time” can be wearing at times. “We are expected to be the experts in the room no matter where we are.” Providers take their responsibilities and expertise very seriously. They enjoy their role and profession, but “self-care and self-preservation” are essential for them to continue to do their vital work in improving the health of children and families. Aligning with the “fostering coalitions and networks” level of the Spectrum of Prevention framework (Cohen & Swift, 1999, p. 204–206), those working in the realm of community health understand the criticalness of a champion medical or dental provider's participation within a coalition. Therefore, the enlightenment of the challenges to their involvement in community programs and coalitions from the providers' perspective within this case study is profoundly helpful.

Community Stakeholders

After coding and categorization, the stakeholder case group mostly provided discernment into the themes of education and awareness, networking, organizational practices, and policy. A more in-depth review into these emergent themes unveiled there is a lack of understanding and awareness around prevention strategies among parents, particularly with families of low-income. Other insights from community stakeholders included the cruciality of community partnerships and policy efforts within community-based prevention strategies. The sub-sections below explain the details of the emergent themes.

Lack of understanding and awareness among parents. Stakeholders involved in community-health prevention strategies communicated there is often a lack of understanding and awareness among parents regarding prevention. This lack of knowledge is primarily about prevention behaviors around dental caries, obesity, and asthma episodes and navigating the health care system and the use of Medicaid for health services. Stakeholders shared, “a lot of times families don’t know what they don’t know.” Individualized communication with families is imperative. “We see parents who have Medicaid for their children but don’t know what they can utilize it for,” so asking the right questions of parents is essential. Prominently found in the literature, Chapter Two also discussed a lack of awareness and access to care as a concern for the prevention of dental caries, obesity, and asthma among children (American Academy of Pediatrics, 2013; Dye et al., 2012; Hasegawa et al., 2015; Murray et al., 2017; United States Department of Health and Human Services, 2000; United States Department of Health and Human Services, 2014. All families are different; community programs and

providers must not assume what a family does or does not know and take the time to build a relationship with families and learn their individualized needs or lack of understanding. “Programs and providers must explain messages and key information in a way that a family understands.” Stakeholders shared, the families they encounter in their community programs are in “crisis mode,” and “connecting and building trusting relationships” with families can provide support and encouragement for families to learn how to access community resources and health services.

Cruciality of community partnerships. Stakeholders stressed the importance of partnerships within the community between schools, health care organizations, social service providers, faith-based institutions, businesses, and government agencies. Due to the multi-disciplinary nature of the prevention of childhood dental caries, obesity, and asthma, as previously noted from the literature within Chapter Two—the cruciality of partnerships across the community is a fundamental component in community-based prevention strategies (Butterfoss et al., 1993; Crawford et al., 2013; Kuo et al., 2012; Leppin et al., 2018; Newton, 2012; Taylor et al., 2016). The Spectrum of Prevention framework also emphasizes the importance of collaboration among partners by noting the Spectrum “delineates a systems approach to prevention practice” (Cohen & Swift, 1999, p. 206). Stakeholders within this study shared, “the spirit of collaboration is strong among community programs; there is always room for more organizations and partners at the table.” “Community partnerships are critical to the success of a community strategy or program.” K–12 schools provide much support for families, and community strategies and programs must do what they can to involve schools in the best and easiest way possible. “Schools are called upon to meet so many needs of children, especially in low-

income, underserved communities. We need to do everything we can to make it easy for schools to participate and be involved in community partnerships.” To help build and strengthen community partnerships, stakeholders noted the importance of gratitude and recognition of those involved in community-based partnerships. Often, many partners within coalitions or programs are volunteering their time or going above and beyond the call of duty. One stakeholder shared, “We all want to feel like we're making a difference. It is nice when other people recognize all the work going on to make a difference. Simply recognizing others helps to build and strengthen community partnerships.” There is a benefit to community-based prevention strategies involving various partners and organizations at the table, but especially regarding the prevention of dental caries, obesity, and asthma.

Policy. Stakeholders noted that within community-based prevention strategies, policy efforts could help create lasting, sustainable behavior change but can be challenging work, especially in addition to educational, programmatic, or awareness strategies. “Within community-based prevention work, policy efforts are sometimes out of people’s comfort zone. We’re more comfortable with providing community education versus working at the policy level.” While tackling state or national policy work might seem too overwhelming, local policy work can provide substantial community influence. One stakeholder reflected, “I don’t think most people realize how much impact local policy can have on your life.” It is imperative for those working in community-based prevention efforts to “get to know their city council representative and zoning ordinances and policies.” Another stakeholder reflected,

I try to tell those I work with within community health that you have a right to voice your opinion to your city council and the zoning commission about things that they're considering that you know from your professional background could have a negative impact on the health of your community.

As presented in Chapter Two, the literature denotes that policies are an effective strategic approach for children and families regarding preventing dental caries, obesity, and asthma—particularly obesity prevention (Crawford et al., 2013; Larson et al., 2009; Lovasi et al., 2009; Zenk et al., 2009). The Spectrum of Prevention framework's highest level promotes “influencing policy and legislation” to achieve system and institutional change regarding health prevention efforts (Cohen & Swift, 1999, p. 204–206).

The stakeholders interviewed within this study that are members of a children's health-focused coalition acknowledged an opportunity for more awareness and strategies among their coalition with policy efforts. One stakeholder serving on the obesity prevention coalition noted, “our coalition is working on taking a more active approach at inviting local politicians and city leaders.”

Discussion of Primary Research Questions

The purpose of this multiple case study was to investigate the overlap of community-based prevention strategies addressing childhood dental caries, obesity, and asthma with children and families to identify potential alignment opportunities. The qualitative data findings and cross-case analysis included near the beginning of this chapter answered the overarching research question for this study, highlighting the unique and equally important viewpoint of parents, program staff, medical and dental providers, and community stakeholders. The remaining paragraphs within this section answer and discuss each case group's primary research question prior to revealing the implications of this multiple case study in the final section within this chapter.

Parents—How Does the Family Environment Influence a Child’s Development or Management of Dental Caries, Obesity, and/or Asthma?

The home environment was a theme identified among the within-case analysis for parents. The parents interviewed provided insight into the influence of the home environment. One parent provided an in-depth understanding of the relevance a child’s home environment has on their development or management of dental caries, obesity, or asthma. This parent, who recently completed the Healthy Homes Asthma Program, noted, “just about everything within our home impacts my child’s health, from cleanliness, cleaning products, smell good products, and even food, physical activity choices and my behaviors as a parent.” This parent’s perspective is essential because it supports the importance of a community-based prevention program providing education, home visiting, and case management services through program staff, such as community health workers, who have built a trusting relationship with the parent. The other two parents interviewed, who were in the early stages of participating in a community-based dental program, signaled an opportunity to provide more awareness around the significance of the home environment to prevent dental caries, obesity, and asthma episodes.

Prevention messages and education, mainly through community-based programming that provides home visits or case management to families, could expand content to address childhood dental caries, obesity, and asthma. Prevention programming and education that include home visiting or case management also align with the research as an effective community-based prevention strategy for childhood dental caries, obesity, and asthma (American Academy of Pediatric Dentistry, 2013; Haire-Joshu et al., 2018; Martin et al., 2016; National Research Council, 2019; Woods et al., 2012). In this case study, parents interviewed demonstrated either the need for or successful experience with

home visiting and case management type services, increasing the parent's awareness and education of the home environment's importance regarding their child's health.

Program Staff—What Roles Do Program Staff Play in Engaging Families in Community-based Prevention Strategies that Address Dental Caries, Obesity, and/or Asthma During Childhood?

As evidenced through the interview data, observations, and document reviews, program staff often communicate directly with families within their programming and promote community education and messages. To engage families in community-based prevention strategies that address dental caries, obesity, and asthma—building and strengthening trusting relationships with families is foundational. Program staff noted that communicating with and staying connected to families is essential to increasing engagement in prevention strategies and programming.

This case study's evidence also showed that many of the families program staff engage within community-based prevention strategies are families of low-income that are often struggling with basic needs, such as food security, or are maneuvering through crisis management mode. Staying connected with families can be challenging for program staff due to frequent address changes or disconnected phone numbers. Program staff noted that meeting a family's basic needs first before engaging in education for dental caries, obesity, and asthma prevention is necessary to gaining trust and building a relationship with a family. The lack of met basic needs of low-income families participating in community-based prevention strategies or programs aligns with the research noted previously in Chapter Two regarding the social determinants of health. Dental caries, obesity, and asthma have social determinants that significantly impact the prevalence of these health conditions during childhood and even share some of the same

social determinants, such as food insecurity (Beck et al., 2014; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Williams et al., 2009). Meeting a family's basic needs first is vital for community-based prevention strategy and program engagement.

Medical and Dental Providers—What Roles Do Medical and Dental Providers Play in Promoting Community-Based Prevention Strategies that Address Dental Caries, Obesity, and/or Asthma During Childhood?

From the results of this multiple case study, medical and dental providers are substantive to incorporating prevention education as early as possible in a child's life. Providers interviewed noted that working to “instill good behaviors and practices early on” regarding dental caries, obesity, and asthma is essential from the child's birth, which also aligns with the literature presented in Chapter Two as an effective approach to community-based prevention efforts (Collins et al., 2016; Ismail, 1998; United States Department of Health and Human Services, 2000). The providers within this multiple case study noted that the older the child's age, the more challenging it is to undo unhealthy behavior decisions with children and families regarding behaviors related to dental caries, obesity, and asthma management.

The providers interviewed in this study also said that to meet the many needs they often see with families within their practice, such as “food, housing, transportation, or legal needs,” they must be aware of and lean on community resources and social service providers. Intentional, collaborative efforts between medical and dental providers and community-based prevention strategies and programs align with the research noted in Chapter Two and are vital to improving the health of children regarding dental caries, obesity, and asthma (Kuo et al., 2012; Leppin et al., 2018; Newton, 2012). To help

medical and dental providers leverage community resources for families, community-based programs and service organizations have an opportunity to educate providers and their staff members on the services a particular community program or organization provides.

Community Stakeholders—What Methods are Used to Rally Community Stakeholders Around the Prevention of Dental Caries, Obesity, and/or Asthma?

There are a few shared methods for engaging community stakeholders around the prevention of dental caries, obesity, and asthma among children and families. Involving community stakeholders in a health-focused coalition or collaboration was a standard method used among the stakeholder interviewed. Then, once stakeholders are engaged in a coalition or collaboration, clearly communicating shared goals, objectives, and prevention messages among the membership is essential. Aligning with research, the method of community-based health coalitions among professionals and community stakeholders can extend the reach of those working to improve a health condition with a centralized strategy and impact (Butterfoss et al., 1993; Crawford et al., 2013). Keeping communication strategic, clear, and focused is a principal method for rallying and keeping stakeholders engaged in preventing childhood dental caries, obesity, and asthma through a health coalition. Making it easy for stakeholders to participate in community-based prevention strategies, such as through the work of a coalition, helps to rally stakeholders around the prevention of dental caries, obesity, and asthma.

Strengthening relationships with community stakeholders and acknowledging the work of all of those in the community working to make a difference in the lives of children and families is another crucial method for rallying stakeholders. Community-based strategies and programs need to provide gratitude and recognition to all of those

involved in community-based partnerships. Appreciating others' work is being a supportive community partner. This acknowledgment that others in the community are also working hard to help prevent dental caries, obesity, and asthma among children keeps stakeholders more energized, engaged, and more likely to collaborate in community-based prevention strategies.

Implications and Recommendations for Coordinating Community-based Prevention Strategies Addressing Dental Caries, Obesity, and Asthma

Evidence from this study provided several implications to coordinate community-based prevention strategies contending to childhood dental caries, obesity, and asthma. In concurrence with the implications for program staff, medical and dental providers, and community stakeholders, the researcher also provides recommendations to support collaborative strategies among these groups for addressing dental caries, obesity, and asthma with children and families. Program staff, medical and dental providers, and community stakeholders should inclusively consider the recommendations below. These recommendations may not be entirely new to those working in the community health sector but validate the importance of using a variety of strategies to help engage children and families in community-based prevention, especially when addressing more than one health issue collaboratively. Due to the complexities of dental caries, obesity, and asthma during childhood, addressing these conditions through community-based prevention strategies takes “comprehensive strategy development, coupled with interdisciplinary collaboration” (Cohen & Swift, 1999, p. 204). This study's recommendations include:

- Align communication methods and strategies among programs, health care providers, and service agencies providing direct services to families.
- Align messaging when promoting community education.

- Adjust program strategies to help meet families' immediate basic needs before providing education.
- Incorporate time and intentional program strategies to build and strengthen relationships with both families and community partners.
- Provide ongoing education to organizations and medical and dental providers regarding program services and resources available for families.

The sections below provide the implications of this multiple case study, along with a further description of the recommendations listed above.

Implications and Recommendations for Communication with Families

Dental caries, obesity, and asthma are multi-factorial health conditions. The prevention of these conditions often requires education and instruction provided to children and their parents about modifying behaviors to make healthier choices. The Spectrum of Prevention theoretical framework also highlights “strengthening individual knowledge and skills” as one layer of its six levels of prevention (Cohen & Swift, 1999). As evidenced in the literature presented in Chapter Two, prevention efforts rely on families, service providers, health care professionals, and communities, which results in a great deal of coordination, and ultimately regularly communicating with parents. Noted by parents, program staff, medical and dental providers, and community stakeholders—communication with parents among programs and service providers is challenging. Particularly with families of a lower-income—program staff, providers, and community stakeholders shared that these families often have address changes and disconnected phone numbers, making it challenging to continue ongoing communication and support. Depending on the nature or purpose of the communication, program staff, providers, and stakeholders often need to select the most appropriate type of communication method

with families; however, all case groups agreed that texting is a preferred communication method by families and provides a response more often from families.

Given the communication challenges with families noted by program staff, medical and dental providers, and community stakeholders, allowing for texting with families and aligning the purpose, frequency, and content of these messages could occur with dental caries, obesity, and asthma information. Utilizing a texting platform to provide resource information or education to families is a potential way to coordinate prevention information for dental caries, obesity, and asthma. Another coordination opportunity is to allow adequate time and resources for staff members within programs, health care offices, and service agencies to exhaust all efforts to find, reach, and communicate with families. These exhaustive efforts might include re-allocating the budget to hire additional staff members, such as community health workers or clerical support, to try and identify new or find existing families for program and provider services, particularly for those families who have disappeared or are no longer easily reached.

Implications and Recommendations for Aligning Messaging When Promoting Community Education

Preventing dental caries, obesity, and asthma during childhood is a complex problem that creates various opportunities and content options for community education messages. Given the overlap of risk factors for these three health conditions (Chi et al., 2017; Di Genova et al., 2018; Marshall et al., 2007; Spiegel & Palmer, 2012), aligning and providing consistent prevention messages to the community for children and families should occur. The Spectrum of Prevention theoretical framework also highlights “promoting community education” as its second level of prevention (Cohen & Swift,

1999, pp. 204–206). In this case study, program staff, medical and dental providers, and community stakeholders shared they strive to begin as upstream as possible with community education and messaging, such as promoting messages that start during pregnancy or with a child’s birth. The literature also denotes the importance of starting as early as possible with prevention education and strategies (Collins et al., 2016; Ismail, 1998; United States Department of Health and Human Services, 2000). Another common theme supported sharing messages with the community from an asset-based view, such as framing the messages around behaviors that the intended audience is doing well, rather than communicating what parents or the community is not doing correctly regarding prevention practices.

Programs, providers, and service organizations that promote community education for dental caries, obesity, or asthma should work together to align and expand their messaging to include education focusing on the overlapping risk factors between these three health conditions. When possible, framing the message within the context of promoting what families or the community are doing right to prevent these three health conditions is also necessary. Expanding community partnerships and networking with other providers and organizations creates opportunities to share and collaborate community messages among dental caries, obesity, and asthma. Collaboration among community programs, medical and dental providers, and other stakeholders corresponds with the fourth level of the Spectrum of Prevention that recommends “fostering coalitions and networks” among community professionals (Cohen & Swift, 1999, pp. 204–206).

Implications and Recommendations for Adjusting Program Strategies to Help Meet Families' Immediate Basic Needs Before Providing Education

The World Health Organization posits that the social determinants of health are “the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life” (WHO, n.d.-a). As demonstrated in the literature, there is a connection among the social determinants of health for dental caries, obesity, and asthma with social capital, neighborhood capital, access to health services, and lower-income levels of the family—primarily poverty. While there is no quick and easy answer for solving the issue of family poverty—program staff, medical and dental providers, and community stakeholders all shared that meeting a family’s immediate basic needs is essential prior to providing prevention education or extensive services when possible.

Families struggling with meeting basic needs would benefit from prevention programs and services that provide home visits or case management by a community health worker or case navigator to help keep families not only aware of, but able to access resources to meet basic needs. Prevention programming and education that include home visiting or case management also align with the research as an effective community-based prevention strategy for childhood dental caries, obesity, and asthma (American Academy of Pediatric Dentistry, 2013; Haire-Joshu et al., 2018; Martin et al., 2016; National Research Council, 2019; Woods et al., 2012). In this case study, parents interviewed demonstrated either the need for or successful experience with home visiting and case management type services. Programs addressing dental caries, obesity, or asthma that utilize and benefit from the work of community health workers should consider cross training these staff members to educate families and provide community

resources that address all three health conditions, particularly where there are overlapping risk factors. Incorporating case management with community programs and strategies also aligns with four of the six levels of the Spectrum of Prevention, including “strengthening individual knowledge and skills,” “promoting community education,” “educating providers,” and “changing organizational practices” (Cohen & Swift, 1999, pp. 204–206).

In this case study, food insecurity was a common need of families that program staff, medical and dental providers, and community stakeholders identified. Low income and food insecurity are also shared social determinants of health across childhood dental caries, obesity, and asthma (Beck et al., 2014; Chi et al., 2014; Flores & Lin, 2013; Ford et al., 2016; Metallinos-Katsaras et al., 2012; Morrissey et al., 2014; Williams et al., 2009). An opportunity to engage families for programs, services, and education is to partner with local food banks or food pantries. Community-based programs and strategies should explore ways to collaborate with or support local food banks. Partnering with food banks to provide or distribute education or resource information with families when they collect their food is an opportunity for programs or providers that address dental caries, obesity, or asthma to work together to create more awareness.

Implications and Recommendations for Incorporating Time and Intentional Program Strategies to Build and Strengthen Relationships with Families and Partners

Each case group within this study revealed the gravity of building trust and relationships, both with families and other providers and community partners. Building and strengthening trusting relationships with families is foundational. To fully engage and sustain engagement with families in community-based prevention strategies that address dental caries, obesity, and asthma, allowing for intentional time and resources for

staff and providers to build trust, create, and strengthen relationships is crucial. Parents within this study reported they long for trust from program staff and health care providers. As evidenced in the literature, families struggle with a lack of access to care for their children, particularly families of a low-income (Dye et al., 2012; United States Department of Health and Human Services, 2000; United States Department of Health and Human Services, 2014). Prioritizing creating a trusting, supportive relationship with families through program and provider services may help keep families aware of and connected to the resources necessary for preventing dental caries, obesity, and asthma during childhood.

In this case study, program staff, medical and dental providers, and community stakeholders all echoed the importance of also building trust and relationships with other providers, organizations, and partners within the community. Case groups also shared that recognition and acknowledgment of everyone working to make a difference in the lives of children and families within their community are influential in strengthening community partnerships. The level in the Spectrum of Prevention framework, “fostering coalitions and networks” among community professionals (Cohen & Swift, 1999, pp. 204–206), provides an opportunity to collaborate and recognize other professionals in the community working to improve the health and well-being of children and families.

For building and strengthening relationships with families—program staff, providers, and community stakeholders should build in or allow for additional time when meeting or conversing with families. Finding or prioritizing additional time may be challenging for busy programs and providers, but it truly is essential. It is also important to communicate with families often and develop methods for two-way communication.

Program staff, health care and service providers often establish how they can reach or communicate with families, but it is also important for these professionals to establish a well-serviced line of communication for families to contact them, not just a way to leave a phone message, but a way for the family to text or call an individual during a designated time of day and get a response. Program staff, medical and dental providers, and community stakeholders working with families must also take the time to recognize and respect a family's individual needs and concerns and then treat that family on an individual level. Given the comorbidity relationship between dental caries, obesity, and asthma during childhood (Ahmadizar et al., 2016; Alavaikko et al., 2011; Black et al., 2012; Costacurta et al., 2014; Garcia et al., 2017; Maupome et al., 2010; Pulgaron, 2012), community programs and strategies educating and building a relationship with families should also work with the family to identify gaps or needs with all three of these health conditions. When talking with a family, staff and providers should take the time to develop and ask a set of questions that can help identify needs with dental caries, obesity, and asthma.

To build and strengthen relationships with other community professionals or providers, program staff or collaboration leadership need to recognize everyone involved in the collaboration. Thanking everyone involved or providing special recognition may seem minor, but it is a fundamental aspect of strengthening relationships among everyone in the community working to improve the health of children and families. When working in a coalition or program that supports dental caries, obesity, or asthma, because of the comorbidity evidence for these health conditions, recognizing and highlighting others' work across sectors and even across a health condition focus is an opportunity to

highlight the work of others in the community. For example, a coalition or collaboration that focuses on children's asthma or childhood obesity prevention could invite a local pediatric dentist to come and speak about dental caries prevention. This invitation recognizes what the dentist and the coalition members are all doing to improve the health of children and creates or validates the awareness of the overlapping relationships between dental caries, obesity, or asthma.

Implications and Recommendations for Providing Ongoing Education to Medical and Dental Providers Regarding Program Services and Resources Available for Families

Keeping children healthy from any health condition requires community-based programs and medical and dental health care providers to partner with other organizations such as schools, housing authorities, or other governmental agencies; many interdisciplinary strategies are necessary. Cross-sector collaboration is imperative for improving a child's health, particularly when addressing dental caries, obesity, and asthma (Kuo et al., 2012; Leppin et al., 2018; Newton, 2012). A well-rounded perspective on children's health requires greater collaboration between community-based prevention strategies to achieve the best children's health outcomes possible in the United States (Kuo et al., 2012). In this case study, the providers interviewed shared that to meet the many needs they often see with families within their practice, they must be able to provide or share about community resources available to families. Medical and dental providers also indicated it is difficult to stay up to date on the many available community resources. Program staff and community stakeholders shared that their strongest relationships with providers and other programs or agencies working with children and families are those where they intentionally educate and communicate about their program's logistics and services.

Providers and community partners should intentionally educate one another about the logistics of how they provide programming or services to families. This basic awareness of how a community program, service agency, or provider takes care of children and families requires ongoing maintenance within collaborative partnerships. Recognizing that providers have very busy schedules, community-based prevention programs and service agencies could package this information about their services or resources in a variety of ways, such as one-on-one visits, email newsletters, short videos, or providing a training over lunch to a providers office.

Summary and Conclusion

As evidenced in the literature, dental caries, obesity, and asthma are common, chronic conditions during childhood. Each of these health conditions is widely prevalent among children in the United States. Not only are these three chronic conditions common among children, but they can be comorbidities of one another and share many of the same risk factors, particularly those risk factors influenced by the social determinants of health. Identified as a missed opportunity to address dental caries, obesity, and asthma collaboratively, this study investigated where community-based prevention strategies align on the Spectrum of Prevention for childhood dental caries, obesity, and asthma, to guide a more coordinated approach with future community health strategies in the prevention of these three health conditions.

In this chapter, the researcher first presented findings from the data analysis in a reverse approach—beginning with answering this multiple case study’s overarching research question from the cross-case analysis. The results then highlighted the within-case results from an analysis using pattern matching and constant-comparison techniques.

Following the within-case framework analysis, the discussion section answered the primary research questions for each particular case. For the implications and recommendations, the researcher used recommendations by Creswell and Poth (2018) to make “generalizations that people can learn from the case for themselves and apply learnings to a population of cases” (p. 206).

Studying the overlap of community-based prevention strategies addressing dental caries, obesity, and asthma during childhood confirmed similar findings in the literature regarding the complexity of these conditions and the need for cross-sector collaboration. The researcher also demonstrated the overlap of communication methods, unmet basic needs, the necessity of trusting relationships, and a greater need for provider and organizational education among families, programs, health care providers, and other service organizations impacting a child’s health and well-being—particularly with dental caries, obesity, and asthma. Studying the intersection of dental caries, obesity, and asthma—the Spectrum of Prevention framework (Cohen & Swift, 1999) proved to be an objective approach to analyze the barriers and successes among community-based prevention strategies. The next and final chapter highlights an executive summary and discusses the distribution of findings from this multiple case study.

CHAPTER FIVE

Distribution of Findings

Executive Summary

Dental caries, obesity, and asthma are common, chronic conditions during childhood. Each of these health conditions is widely prevalent among children in the United States. Not only are these three chronic conditions common among children, but they can be comorbidities of one another and share many of the same risk factors, particularly those risk factors influenced by the social determinants of health (Chi et al., 2017; Genova et al., 2018; Marshall et al., 2007; Spiegel & Palmer, 2012). Research shows that dental caries, obesity, and asthma episodes for children are preventable through primary prevention strategies. There are successful community health prevention programs and strategies offered across the country attempting to prevent dental caries, obesity, or asthma during childhood, but through a more siloed approach, focusing on only one of these conditions at a time (American Academy of Pediatric Dentistry, 2013; Brock et al., 2019; Butterfoss et al., 1993; Collins et al., 2016; Crawford et al., 2013; Greenburg et al., 2008; Haire-Joshu et al., 2018; Hoppe et al., 2013; Ismail, 1998; Jhun et al., 2016; Liptzin et al., 2016; Mitchell et al., 2012; Murray et al., 2017; Rabito et al., 2017; Turyk et al., 2013; United States Department of Health and Human Services, 2000).

Research lacks community health strategies that collaboratively address dental caries, obesity, and asthma among children. The prevalence and severity of these three chronic conditions necessitate prevention efforts with families, especially families of a

racial minority or low income. Given the relationship between dental caries, obesity, and asthma during childhood, addressing them through a more coordinated approach with community strategies that align with the Spectrum of Prevention will achieve a more meaningful impact (Cohen & Swift, 1999).

This multiple case study explored the barriers and strong commonalities among community health strategies aligning with the theoretical framework—Spectrum of Prevention—to recommend a coordinated approach for community health professionals to address the prevention of childhood dental caries, obesity, and asthma episodes more collaboratively. Ultimately, this multiple case study aimed to develop a lens for better coordination between community health professionals, primary clinical health care providers, and other community stakeholders working to improve children’s health and well-being.

Overview of Data Collection and Analysis Procedures

Collaborative efforts for preventing dental caries, obesity, and asthma during childhood will most likely require system-level change and interdisciplinary coordinated efforts. To support the appeal for understanding complex, multi-disciplinary phenomena concerning social experiences, this research utilized a multiple case study design to best allow for this type of exploration (Yin, 2014). Yin (1999) states that these conditions favor case studies over other methods for health services research: the problem involves “‘mega-systems’ of great complexity” linking multiple components in new ways, there are ever-changing rules within a health-system, and corporate affiliations and motivations can be difficult to track (p. 1209). The conditions that Yin (1999) speaks to for health

services research were increasingly applicable for this multiple case study due to the complexity of childhood dental caries, obesity, and asthma.

With dental caries, obesity, and asthma sharing risk factors and often co-occurring among today's children, it was essential to use the Spectrum of Prevention lens as the posteriori theoretical framework in this multiple case study. The Spectrum of Prevention is a framework that identifies six levels of prevention and provides a methodology to synergize community strategies for dental caries, obesity, and asthma. Prevention strategies designed using the Spectrum of Prevention framework intend to increase and sustain community capacity to improve health (Cohen & Swift, 1999); therefore, it was critical to begin researching both the barriers and commonalities among successful strategies to address childhood dental caries, obesity, and asthma synergistically and collaboratively.

The multi-faceted investigation within this multiple case study involved parents, community-based program staff, medical and dental health care professionals, and community stakeholders. This case study utilized purposeful sampling techniques to ensure the participants in each case described a rich, unique perspective related to the central phenomenon of a collaborative approach to community-based prevention strategies for dental caries, obesity, and asthma episodes during childhood (Merriam, 2009; Patton 2014; Yin, 2018). Moreover, maximum variation sampling in this study allowed for a variety of backgrounds within each case. This variety of experiences helped illuminate the need for multiple perspectives for investigating the complex phenomenon of coordinating community-based prevention efforts of dental caries, obesity, and asthma episodes during childhood. The study collected data through semi-structured interviews,

participant as observer observations, and a review of documents, including meeting minutes, program measures, and strategic plans—from the participants selected through purposeful maximum variation sampling.

Due to each case’s unique perspective within this study, gaining an understanding within each case was vital before data examination across each case. Understanding data across each case and through the lens of dental caries, obesity, and asthma was augmented by “early identification of situations” of apparent issues (Stake, 1995, p. 29). Ultimately, building upon the data analysis led to the final synthesis of data and the purpose of this study, examining the commonalities among dental caries, obesity, and asthma.

Summary of Key Findings

After completing a within-case framework analysis and a cross-case thematic analysis, this multiple case study discovered an overlap among strategies concerning communication methods with families and the community, meeting basic needs, trust and relationship building, and provider and organizational education. After categorizing the data within each case according to the Spectrum of Prevention framework, the researcher applied a cross-case thematic analysis to determine overlap among the community health strategies provided by collected data from interviews, observations, and document review. Figure 5.1 demonstrates the process used to ascertain an intersection of findings among the cases—and ultimately, dental caries, obesity, and asthma.

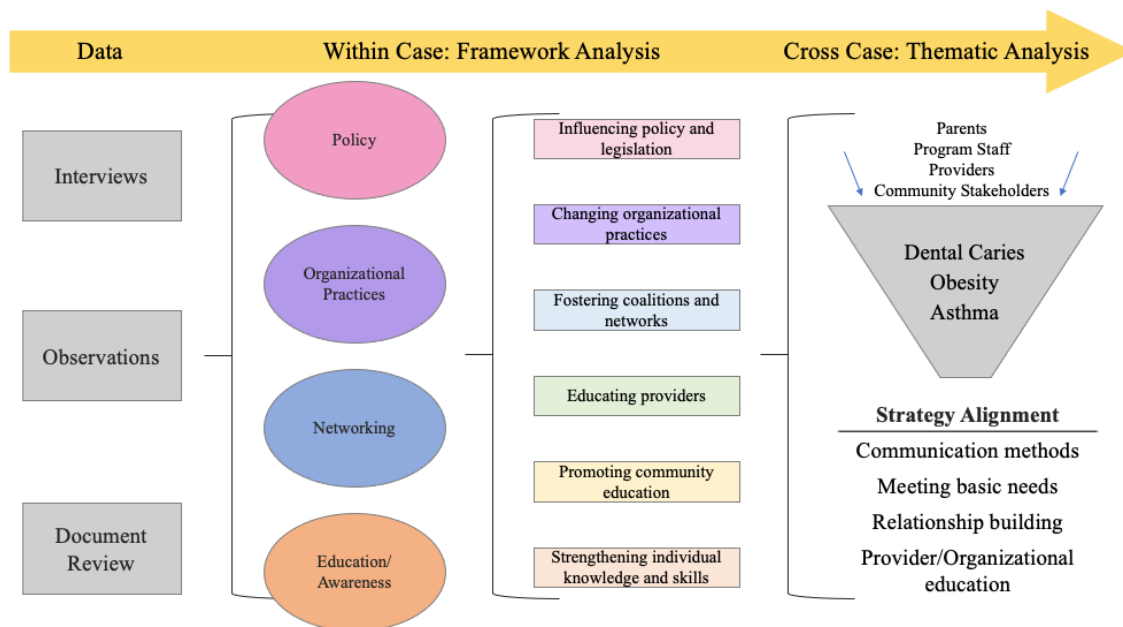


Figure 5.1. A summary of the data collection and analysis methodologies within this multiple case study highlighting the qualitative data findings.

Similar themes emerged across the four cases within this multiple case study. The first theme is regarding communication methods with families. All four cases within this study spoke about texting as a positive method for program staff and health service providers to use with families.

A second theme is communication methods across the community. Program staff, providers, and stakeholders recognized and asserted the differences in communication methods when sharing information across the community or engaging providers and community organizational partners versus communicating directly with families. When promoting prevention messages and community education in general, these three case groups all strive to begin as upstream as possible, such as promoting messages that start during pregnancy or with a child's birth. Case groups shared they seek to take an asset-

based view and highlight behaviors that the intended audience is doing well, rather than promoting messages from a deficit-based approach.

The third theme is a shared recognition that families engaging in community-based programming and the families of low-income and Medicaid recipients engaging with medical and dental providers often operate in crisis management mode. Program staff, medical and dental providers, and community stakeholders not only all recognize this but expressed how crucial it is to work to meet a family's basic needs first before sharing education or extensive services. A lack of food security among families they engage with was an everyday basic need expressed by these three case groups.

All four case groups voiced the magnitude of building trust and relationships as a fourth theme. Parents shared the importance of program staff members, service providers, and health care providers taking the time first to listen and get to know the parents. Program staff, medical and dental providers, and community stakeholders all reiterated the eminence of building trust and relationships with families, other organizations and partnerships, and with the community. Building trust with families takes time but must occur for authentic engagement with a family in a program or provided services. The more successful partnerships among program staff, medical and dental providers, and community stakeholders prioritize communication, education, and acknowledgment among the various community members.

For the fifth and final theme—program staff, medical and dental providers, and community stakeholders all discussed the need for and impact of providing education to other programs, providers, and organizations. Addressing the prevention of dental caries, obesity, and asthma during childhood requires various strategies, providers,

organizations, and systems. Families need a multitude of services. An essential aspect of working within a community is to educate the individuals and organizations all working to improve children and families' health. This education may include program or provider services, available community resources, proper prevention message alignment, networking opportunities, and accurate and aligned health prevention education.

Informed Recommendations

In congruence with this study's evidence, the researcher provides recommendations for coordination opportunities with community-based prevention programs and strategies addressing dental caries, obesity, and asthma with children and families. Due to the complexities of dental caries, obesity, and asthma during childhood, addressing these conditions through community-based prevention strategies takes "comprehensive strategy development, coupled with interdisciplinary collaboration" (Cohen & Swift, 1999, p. 204). This study's recommendations include:

- Align communication methods and strategies among programs, health care providers, and service agencies providing direct services to families, primarily focusing on ways to begin or expand texting or a texting platform.
- Align messaging when promoting community education.
- Adjust program strategies to help meet families' immediate basic needs before providing education.
- Incorporate time and intentional program strategies to build and strengthen relationships with both families and community partners.
- Provide ongoing education to organizations and medical and dental providers regarding program services and resources available for families.

Findings Distribution Proposal

The following paragraphs within this section review the dissemination methods and details regarding the findings and results of this multiple case study. The subsections include discussion of the target audience, the proposed distribution method and venue, and varying types of distribution materials. The final section within this dissertation concludes with an overall summary statement supporting a coordinated approach to addressing dental caries, obesity, and asthma during childhood through community-based prevention strategies.

Target Audience

The researcher plans to share this multiple case study's findings and recommendations with the leadership and staff members among the Center for Children's Health within Cook Children's Health Care System and the community stakeholders involved in the coalitions and programs within the Center for Children's Health. The list below provides the Center for Children's Health leadership, staff members, and stakeholders receiving information from this research.

- Senior Vice President
- Assistant Vice President
- Director of Child Oral Health
- Director of Child Wellness
- Program managers, coordinators, and community health workers
- Coalition members and community stakeholders affiliated with the asthma, dental, and obesity prevention programs within The Center for Children's Health

Proposed Distribution Method and Venue

The researcher will schedule a meeting with the Center for Children's Health leadership and staff members to share a presentation of the research study's findings. Many of the research participants were staff members, but the researcher will also invite the remaining study participants from the medical and dental provider and community stakeholder cases to this presentation. The researcher's subsequent presentations will occur during a regularly scheduled advisory and coalition meeting of the Children's Oral Health Coalition, Healthy Children Coalition for Parker County, and the Save a Smile Advisory Committee. Each presentation will provide an opportunity for audience members to reflect and process the study's findings and brainstorm opportunities for any next steps based on the study's recommendations and audience feedback.

The researcher also plans to submit a poster or conference presentation proposal with the following community health-related conferences included in the list below.

- American Public Health Association
- Association of Community Health Improvement
- Root Cause Coalition National Summit
- Society for Public Health Education

An additional distribution opportunity the researcher plans to pursue is submitting a manuscript for potential publication in *Health Education and Behavior* or *Health Promotion Practice*.

Distribution Materials

The researcher will provide a copy of the presentation, executive summary, and one-two-page summary handout for the presentations to the Center for Children's Health

leadership and staff members. For the presentations made at the associated coalition and advisory meetings, the researcher will provide a one–two-page handout. The one–two-page handout will include an overview of the research, the study’s findings, and recommendations.

Conclusion

The results of this multiple case study support that given the relationship between dental caries, obesity, and asthma during childhood, addressing them through a more coordinated approach with community strategies that align with the Spectrum of Prevention theoretical framework is possible. Most often, successful community health strategies for preventing these three health conditions currently occur through a more siloed approach. Given the relationship between these three health conditions presented in the literature coupled with the results and recommendations provided from this study, there is an opportunity to begin planning and incorporating strategies within community-based prevention programming that collaboratively address dental caries, obesity, and asthma with children and families. This study recommends that synchronizing multi-variate prevention efforts for dental caries, obesity, and asthma from a community-based strategies aspect is not only possible but necessary and provides practical strategies to begin this process.

APPENDICES

APPENDIX A

Interview Protocol

Pre-Interview: I will introduce myself and the purpose of the study. I will discuss the research participant consent form and ask the participant to read and sign it, if they choose to participate.

Date/Time of Interview: _____

Location of Interview: _____

Interviewer: _____

Interviewee: _____

Addresses Overarching Research Question: Where do community-health strategies that address childhood dental caries, obesity, and asthma intersect on the Spectrum of Prevention?

Addresses Primary Research Questions:

- Parents: How does the family environment influence a child's development or management of dental caries, obesity, and/or asthma?
- Program Staff: What roles do program staff play in engaging families in community-based prevention strategies that address dental caries, obesity, and/or asthma during childhood?
- Medical and Dental Providers: What roles do medical and dental providers play in promoting community-based prevention strategies that address dental caries, obesity, and/or asthma during childhood?
- Community Stakeholders: What methods are used to rally community stakeholders around the prevention of dental caries, obesity, and/or asthma?

The following questions will be asked according to each specific case being interviewed. The semi-structured interviews will begin with the pre-determined questions, but the discussion will also follow the direction of the discussion.

Parents:

- What does the word prevention mean to you?
- What does a healthy community mean to you?
- How would you feel if a medical or dental provider told you that your child has tooth decay, asthma, or is overweight?
- Describe what it is like to find medical care or dental care for your child?
- What does a typical weekday look like for your family? (timeline, activities, etc.)
- In what way does your home environment affect your child's health?

- What types of community-based programs have you participated in for your child's health?
- What ways do program staff or medical and dental providers attempt to contact you? How do you prefer to be contacted?
- If your child had/has tooth decay, asthma, or weight concern, what could a community-based program do to help you manage that health condition?
- What does the word prevention mean to you?
- What is your vision for a healthy community?
- What are your current program or coalition strategies?
- What methods of contact do you use for the families/community partners in your program or initiatives?
- In your experience, what methods work best for contacting families or community partners?
- What barriers do you encounter with engaging families or community partners in your program or coalition strategies? How are you currently addressing these barriers?
- How does your program or coalition address social service needs?
- What other types of community partners need to be involved in your program or coalition?
- How does a family's culture influence their participation in your program?
- What is the role of your program or coalition in collaborative partnerships in community health?
- How does your program or coalition address social service-related needs?
- What other types of community partners need to be involved in your program or coalition?

Medical and Dental Providers:

- What does the word prevention mean to you?
- What is your vision for a healthy community?
- What is your perception of community-based prevention strategies and programs for improving a child's health?
- What barriers do you encounter with engaging families in your practice? How are you currently addressing these barriers?
- What successful strategies have you used to engage families in your practice?
- What role do family education, community involvement, and policy play in your professional practice to improve a child's health concerning dental caries, obesity, and asthma?
- What is your involvement in community-based prevention strategies?
- What barriers do you encounter with collaborating with community health professionals or community stakeholders working to improve children's health? How are you currently addressing these barriers?

Community Stakeholders:

- What does the word prevention mean to you?
- What is your vision for a healthy community?
- What is your perception of community-based prevention strategies and programs for improving a child's health?
- What role do family education, community involvement, and policy play in your professional practice to improve a child's health in relation to dental caries, obesity, and asthma?
- What barriers do you encounter with engaging families or other community partners in your practice? How are you currently addressing these barriers?
- What successful strategies have you used to engage families or community partners in your practice or organization?
- What is the role of your program or organization in collaborative partnerships in community health?
- What barriers do you encounter in collaborating with medical or dental providers working to improve children's health concerning dental caries, obesity, and asthma? How are you currently addressing these barriers?

APPENDIX B

Observation Protocol

Pre-Observation: I will introduce myself and the purpose of the study. I will discuss the research participant consent form for the coordinator of the meeting and ask the coordinator to sign it, if they have not already signed a form for interview participation.

Observation of the following coalition and advisory committee meetings will take place. These observations will be participant as observer. The coordinator of each meeting will introduce me as a guest in the meeting. Due to COVID-19, these meetings will be held via Zoom. I will record written notes on necessary information learned throughout the observation. I will potentially participate in the discussion according to the meeting topics defined on the predetermined agenda by the coordinator of the meeting. The purpose of the observations are to observe meeting conversation and interactions among the advisory or coalition members and program staff.

Observation Schedule:

Save a Smile Advisory Meeting	October 2, 2020
Children's Oral Health Coalition Meeting	October 16, 2020
Healthy Children Coalition for Parker County	November 12, 2020

Observation Date:_____ Time: Start:_____ End:_____
Program/Coalition Name:_____ Observer:_____
Health Topic:_____

Descriptive Notes	Reflective Notes
Meeting Agenda/Flow	

Descriptive Notes	Reflective Notes
Interactions between staff and meeting attendees	

Descriptive Notes	Reflective Notes
Discussion during meeting	

Additional Takeaways:

APPENDIX C

Consent Form

Baylor University

Department of Curriculum and Instruction

Consent Form for Research

PROTOCOL TITLE: Dental Caries, Obesity, and Asthma During Childhood: A Qualitative Multiple Case Study to Determine Where Community-Based Prevention Strategies Intersect to Guide a Coordinated Approach for 21st-Century Families

PRINCIPAL INVESTIGATOR: Becki Hale

SUPPORTED BY: Baylor University

Purpose of the research:

The purpose of this qualitative multiple case study is to determine a coordinated approach for community health professionals to use in addressing childhood dental caries, obesity, and asthma through the lens of the theoretical framework, the Spectrum of Prevention. The goal of the study aims to synchronize multi-variate prevention efforts for dental caries, obesity, and asthma from a community-based strategies aspect. Ultimately, this multiple case study fills a gap in research regarding where community-based prevention strategies align on the Spectrum of Prevention for childhood dental caries, obesity, and asthma, to guide a more coordinated approach with future community health strategies in the prevention of these three health conditions. We are asking you to take part in this study because you are a current, experienced community health professional working in a program within The Center for Children's Health that addresses either oral health, obesity prevention, or asthma.

Study activities: If you choose to be in the study, you will participate in some of the following activities which include:

- An interview with the principal investigator relating to your experiences serving families or working with community partners for your related program or coalition.
- An observation of your coalition meeting or advisory meeting: The principal investigator will attend an upcoming meeting to observe and take notes on the meeting's discussion.
- Document review: The principal investigator will review your program or coalition's current strategic plan and program measure reports to look for commonalities and

alignment with programs or coalitions addressing oral health, obesity prevention, and asthma within The Center for Children's Health.

We expect that this research study will take about 3-4 months. During this time, an interview will be scheduled with you at an agreed-upon day and time. The interview will be 30-60 minutes long. The principal investigator may request to interview you a second time, as well. The interviews will be recorded and transcribed at a later date. The observations will occur during the months of October through December, depending on your upcoming meeting schedule. The observations will focus on your meeting agenda and discussion. Document review will occur in October through December. A pseudonym will be used for your name in all printed and published materials. If you agree to take part in this study, we will ask you to complete this consent form before we do any study procedures.

Audio recording:

We would like to make an audio recording of your interview during this study. If you are recorded it will be possible to identify you by voice recognition on the recording. We will label these recordings with a code instead of your name. The key to the code connects your name to the recording. The researcher will keep the key to the code in a password-protected computer/locked file. The recordings will be destroyed following the completion of the study. Audio recording is required for those who are interviewed for this study. If you do not want to be recorded, you should not be in this study.

Risks and Benefits:

To the best of our knowledge, there are no risks to you for taking part in this study. You may or may not benefit from taking part in this study. Possible benefits include a contribution to a better understanding of successful commonalities and/or barriers among community-based strategies that address dental caries, obesity, and asthma utilized within The Center for Children's Health. The Center for Children's Health (C4CH) leadership may benefit in the future from the information that is learned in this study, as it may help to align programs or initiatives across all health topics addressed within C4CH.

If you feel emotional or upset when answering some of the questions, tell the interviewer at any time if you want to take a break or stop the interview. If you feel uncomfortable with some of the questions and topics we will ask about, you do not have to answer any questions that make you feel uncomfortable.

Confidentiality:

When participating in this study, there is the possibility of a loss of confidentiality. Loss of confidentiality includes having your personal information shared with someone who is not on the study team and was not supposed to see or know about your information. The researcher plans to protect your confidentiality.

We will keep the records of this study confidential by using codes and keeping all research material in a password-protected computer and locked file cabinet. We will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

The authorized staff of Baylor University may review the study records for purposes such as quality control or safety.

Compensation:

You will not be paid for taking part in this study.

Questions or concerns about this research study:

You can call us with any concerns or questions about the research. Our telephone numbers and email addresses are listed below:

Principal Investigator: Becki Hale, Becki_Hale1@baylor.edu, (817) 709-6976

Faculty Advisor: Dr. Tony L. Talbert, Tony_Talbert@baylor.edu, (254) 710-7417

If you want to speak with someone not directly involved in this research study, you may contact the Baylor University IRB through the Office of the Vice Provost for Research at 254-710-1438. You can talk to them about:

- Your rights as a research subject
- Your concerns about the research
- A complaint about the research

Taking part in this study is your choice. You are free not to take part or to stop at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. Information already collected about you cannot be deleted.

By continuing with the research and completing the study activities, you are providing consent.

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