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Vulnerable populations in the Caribbean: Exploring women's experiences of pregnancy and prenatal care in St. Kitts and Nevis, West Indies

A dissertation submitted in partial satisfaction of the requirements for the degree of

Doctor of Philosophy in Nursing

Jamela Marcia Martin

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Linda F.C. Bullock, PhD, RN, FAAN – Dissertation Chairperson

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DEDICATION

This dissertation is dedicated to my sunshine, Kendal Bryce Martin. Thank you for being the light of my life.

To my parents, Dr. Marcus L. Martin and Donna M. Martin, who supported and encouraged me: this would not have been possible without your unconditional love.

And to my siblings, extended family, and friends…thank you for being my cheering squad.

Through Him all things are possible…

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ABSTRACT

Infant mortality is one of the most important indicators of the health of a nation. It is associated with a variety of factors such as maternal health, quality and access to medical care, socioeconomic conditions, and public health practices (CDC, 2013). Globally, in 2011, three million infants died before their first birthday. Numerous studies have shown that quality prenatal care can have a positive effect on birth outcomes through prevention and early diagnosis of maternal chronic health issues that can then lead to a reduction in infant mortality and prematurity. Strategies must be identified that will help reduce the long-term consequences that poor maternal health has on pregnancy outcomes, such as prematurity, that puts infants at risk for dying. More research needs to be conducted in West Indian islands, where varying cultural beliefs and practices might play a large role in maternal health. Small West Indian islands, where there has been little to no health research, represent an important segment of the health disparities population. Aggregate Latin American and Caribbean health data signifies a lack of knowledge that results in greater health disparities. In St. Kitts and Nevis, critical changes in nursing education and scope of practice have drastically reduced the rate of infant mortality since the 1970's, however, more progress is necessary to reach Millennium Development Goals. In a country where primary and preventative services are free, yet prenatal care services are still underutilized, understanding maternal behavioral intent may be the key to improving early access to prenatal care. In-depth interviews were conducted with pregnant and postpartum women (n=15) and healthcare providers (n=6) to better understand perceived issues surrounding lack of prenatal care uptake. Content analysis of interviews and health clinic observational data revealed that, while women did obtain the WHO minimum standard of four prenatal care visits, early access to care was mitigated by women's desires for empowerment, perceptions of lack of confidentiality at community clinics, and limited collaboration between private physicians and community center nurses. Providers cited women's lack of understanding of the need for early prenatal care as a major reason for service underutilization. Enhanced public promotion of community educational services, provider confidentiality training, and improvements in healthcare provider collaborative efforts, through policy changes and interprofessional education, may improve uptake of prenatal care services and lead to improvements in maternal-child outcomes.

CHAPTER ONE: INTRODUCTION

Introduction

Approximately 90% of the global burden of disease lies in poorer countries and rural communities, yet only about 10% of current research is focused on improving the health of these populations (Stevens, 2004). Moreover, the World Health Organization cites that progress toward the Millennium Development Goal of improving maternal health has been the most disappointing of all the goals (UN, 2010). Small West Indian islands, where there has been little to no health research, represent a significant segment of the health disparities population. Aggregate Latin American and Caribbean health data signifies a lack of knowledge that results in greater health disparities. More research needs to be conducted in West Indian islands, such as St. Kitts, where varying cultural beliefs and practices might play a large role in population health and health services (Kreuter & McClure, 2004). Through understanding how knowledge, attitudes, and beliefs of the people on each island impacts health-seeking behaviors and decision-making, targeted health interventions may help achieve global health goals. Health disparities must be addressed to improve prevention and health promotion strategies for the entire population (NINR, 2011).

Moreover, to address the specific issue of maternal-child health disparities, strategies must be identified that will help reduce the long-term consequences that poor maternal health has on pregnancy outcomes, such as prematurity, that puts infants at risk for dying. While infant mortality rates are on the decline, small islands like St. Kitts and Nevis continue to have mortality rates nearly twice as high as the United States (15/1000 and 8/1000 respectively) (Martin, 2011). Approximately 95% of the infant deaths in St. Kitts are the result of prematurity,

partially resulting from lifestyle choices that increase the risk for hypertension and diabetes during the prenatal period.

Numerous studies have shown that quality prenatal care can have a positive effect on birth outcomes through prevention and early diagnosis of maternal chronic health issues that can then lead to a reduction in infant mortality and prematurity (Chao, et al, 2010; Hussaini, Holly, & Rittenour, 2011; Van Dijk, Anderko, & Stetzer, 2011). A major challenge in the care of women and children in St. Kitts, as expressed by the Chief Medical Officer, is the overall lack of participation in health maintenance and preventative care at community health centers that could address underlying health issues such as hypertension and diabetes. Though prenatal care is universally available to pregnant women at the eleven community centers located on the small island, island health officials have noted an overall lack of use of these free services. However, the factors that influence decision-making resulting in the non-use of these free medical services during pregnancy has yet to be identified. The overall goals of this study were to better understand women's experiences of prenatal care in St. Kitts, and to define the underlying mechanisms that create barriers to care for these women.

Study Purpose and Specific Aims

The purpose of this focused ethnographic study was to better understand issues of prenatal care service under-utilization in St. Kitts and Nevis. To accomplish this, two aims were developed. They were:

Aim 1: To describe the experience of prenatal care from the perspective of the women, providers, and policy makers in St. Kitts, and

Aim 2: To document the barriers and facilitators to full community use of free prenatal care services.

These aims were accomplished by conducting interviews with women about their experiences, or lack thereof, of prenatal care who are between the third trimester of pregnancy and one year postpartum; conducting interviews with providers and policy makers about the health system and; observing the culture of prenatal care in the community health centers, hospital obstetrics ward, and other appropriate locations.

This study serves as a foundation for future intervention studies in West Indian Health, which will ultimately help decrease maternal-child health disparities relative to infant prematurity and infant mortality, all of which are priorities for nursing research (NINR, 2011).

CHAPTER TWO: REVIEW OF THE LITERATURE

Infant Mortality

"Infant mortality is one of the most important indicators of the health of a nation, as it is associated with a variety of factors such as maternal health, quality and access to medical care, socioeconomic conditions, and public health practices (CDC, 2013)". In other words, the infant mortality rate in a country, high or low, provides an efficient snapshot of the health of the nation. Based on this statement by the Centers for Disease Control, a relatively high infant mortality is reflective of underlying issues within the health system.

Infant care spans the breadth of a health system's services, providers, and levels of care. The care of an infant begins long before his or her first visit to the pediatrician. The infant's parents, community health centers providing antenatal care, obstetricians, perinatologists, neonatologists, emergency medical personnel, pediatricians, and nurses in a variety of disciplines are all charged with the task of improving infant outcomes.

Infant mortality is defined as the death of a child prior to his/her first birthday. In 2011, there were five million child deaths; three million of those were infants. Globally, the infant mortality rate is 12/1000 live births. In the United States, the infant mortality rate per 1000 live births is approximately 6.8 (CDC, 2013). Though the United States (U.S.) is a developed nation with relatively high health expenditures per capita, the infant mortality rate continues to be higher than many other developed countries. The gap between U.S. and countries with the lowest rates of infant mortality is widening. The issue of infant mortality in the United States is worsening, and increases in preterm birth and preterm-related infant mortality account for much

of widening gap. The infant mortality rate in the United States ranks 34th compared to other developed countries.

Causes of infant mortality vary largely by region and country. Globally, the four major killers of children under age five were pneumonia (18%), diarrheal diseases (11%), birth asphyxia (10%), and prematurity (16%). Together, these causes account for 57% of infant deaths worldwide (CDC, 2013). Malaria was still a major killer in Sub-Saharan Africa, causing about 15 percent of under-five deaths in the region. What is of utmost importance to recognize is that 15% of deaths from prematurity occur within the neonatal period, which encompasses the first month of life. For deaths from diarrheal diseases, nine percent occur during the neonatal period. This underscores the importance of early access to quality care prior to, and during, the critical first month of an infant's life.

In the United States, the leading causes of infant death in 2007 were congenital anomalies (birth defects), short gestation and low birth weight, Sudden Infant Death Syndrome (SIDS), maternal complications of pregnancy, unintentional injuries, cord and placental complications, and respiratory distress syndrome. Together these causes accounted for 62.1% of all infant deaths in 2007 and 57.9% of all infant deaths in 1970. Over the past 40 years, minimal progress has been made on reducing infant deaths from these causes.

While in many countries, global infant mortality rates are on the decline, smaller countries and rural areas continue to have higher rates of infant death. Using prematurity as an indicator of health, the rate in Latin America and the Caribbean is 16.7/1000 live births; three times that of the United States. In St. Kitts and Nevis, the rate of infant death is increasing. In 2010, infant mortality was approximately 16.8/1000. By 2012, the rate of infant mortality had increased to 18.3/1000. While the rate of infant deaths in St. Kitts and Nevis may not be as high

as many countries in Africa with infant mortality rates in the 50s-60s/1000 live births, a staggering 88% of Kittitian infant deaths are the result of sequelae from prematurity. That is in comparison to 33% for the United States. This belies the importance of early access to quality care during the perinatal and neonatal periods, better understanding of the factors that contribute to these deaths during the neonatal period, and a focus on the causes of infant mortality and morbidity related to factors of premature birth.

Infant Mortality and Morbidity Associated with Prematurity

Premature birth is defined as the birth of an infant prior to 37 weeks, or 259 days, completed gestation (Beck et. al, 2010; CDC, 2012; March of Dimes, 2010). Every year more than half a million infants (approximately 12.5% of births) are born prematurely in the United States (CDC, 2012). Approximately 41% of deaths reported in the under-five mortality rate occur within the first month of life (Darmstadt, 2010). In St. Kitts, premature birth is the cause of a staggering 88% of infant deaths (Martin, 2012). Neonatal deaths disproportionately contribute to the overall infant death rate. This alarming statistic has raised awareness, worldwide, with global stakeholders, governments, non-governmental organizations, and policy-makers.

As research advances the practice of perinatal care, fetal survival is occurring earlier in the gestational period. The term *perinatal care* has been used to describe various stages in pregnancy and delivery, but is defined here as the period from 28 weeks completed gestation to one week postpartum (Darmstadt, 2010). In the last 40 years, care in antepartum and neonatal intensive care units has become more sophisticated, thus contributing to the reduction of mortality for preterm infants (Dalziel, 2010; McIntire & Leveno, 2008). However, advances in

the care of pregnant women also lead to the survival of increasingly earlier-term infants, leading to increases in preterm infant morbidity and poorer outcomes. According to the Centers for Disease Control Data and Statistics (2007), preterm births increased from 10.6% to 12.7% between 1995 and 2005 representing a 20 percent increase in the United States during this 10-year period. Additionally, the percentage of term births at 40 weeks has decreased by 15% (CDC, 2007).

To date, the particular mechanisms and causes of preterm birth have yet to be defined. What is known is that the incidence of preterm birth is on the rise, and the potential consequences to preemies, parents, and society are vast (CDC, 2007; IOM, 2006). The issue of premature birth is gaining awareness worldwide and has become a public health concern that costs societies at least $26 billion a year (IOM, 2006). The National Center on Birth Defects and Developmental Disabilities found that the average lifetime cost associated with cerebral palsy was about $921,000 per person in 2003. Additionally, the Institute of Medicine estimated that for every additional $1.00 spent on prenatal care, $3.37 is saved on healthcare spending for neonates (IOM, 2011). It is clear, however, that the greatest potential cost to the infant born prematurely is a reduction in quality of life due to long term sequelae of brain injury.

The consequences of preterm birth on the premature infant are considerable and can include conditions with long term sequelae such as chronic lung disease, broncho-pulmonary dysplasia, retinopathy of prematurity, hyperbilirubinemia, nutritional deficiencies, cerebral palsy, and necrotizing enterocolitis (Als, 1999; March of Dimes, 2010; Perlman, 2001). The conditions that present the greatest risk to the cognitive and neurologic development of preterm infants are intraventricular hemorrhage and periventricular leukomalacia, which can lead to cerebral palsy. These conditions are often the result of injury in-utero during periods of increased plasticity in

the brain, when subplate neurons, the basal ganglia, and the hippocampus are developing (Anand & Scalzo, 2000) (Perlman, 2001). Additionally, behavioral and emotional psychopathologies in adulthood have been shown to be associated with abnormal conditions at birth (Anand & Scalzo, 2000).

Furthermore, the demands placed on state, governmental, and private agencies that provide follow up care to premature infants, school-aged children with developmental delays, and adults with emotional disturbances are increasing as the rate of preterm births increases. The significance of these issues is enormous, considering that the relative costs to the premature infant, parents, and the public are potentially exponential and is a situation that can affect any family at any time. The consequences are vast and nursing practice is charged with the task of improving clinical outcomes based upon research evidence. Improvements in infant outcomes means decreased health care costs and improved quality of life over the lifespan.

Connecting Prenatal Care with Birth Outcomes

Several theoretical frameworks, that guide strategies for prevention and intervention of pre-term birth, focus on the continuum of care as the most comprehensive approach to preventing infant death (Bhutta, Darmstadt, Hasan, & Haws, 2005; IOM, 2006; WHO, 2010). The *Saving Newborn Lives Continuum of Care* established by Save the Children USA, and supported by the World Health Organization's *Packages of Interventions*, prioritizes prenatal care as the first line of defense for the prevention of neonatal death in developing countries (IOM, 2006; Marsh et. al, 2002). Universal access to, and improved quality of, prenatal care is fundamental to the achievement of child survival (Darmstadt, 2010; IOM, 2006; Bhutta et al, 2005).

It is well established that prenatal care is connected to birth outcomes. The American Association of Pediatrics (AAP) and the American College of Obstetrics and Gynecology (ACOG) assert that women who receive early and regular prenatal care deliver healthier infants (AAP & ACOG, 2007). It is during prenatal care that comorbidities, such as maternal hypertension and diabetes that can lead to infant death, are prevented and/or addressed (AAP & ACOG, 2007; WHO, 2007). Though it has been argued that there is no direct link between prenatal care and birth outcomes (Alexander & Kotelchuck, 2001; Barfield, et. al, 1996), others have documented improved perinatal outcomes and reduced infant morbidity (Ickovics et. al, 2003; McCormick & Seigel, 2001). Nevertheless, the obvious utility of prenatal care is that women who are prone to pregnancy-related morbidities can receive early screening and treatment (AAP&ACOG, 2007). Without prenatal care and surveillance, conditions such as gestational diabetes (GDM) and preeclampsia may go unrecognized in poor, uneducated, and/or vulnerable populations. Otherwise healthy women should be at low risk of developing GDM; however, income, education level, and ethnicity are significant social determinants of the development of diabetes (WHO, 2011). An analysis of social determinants, attitudes, and behaviors is critical to further understanding the connection between prenatal care and birth outcomes in Kittitian women.

The reason for the discrepancy in opinions or findings about prenatal care and birth outcomes seems to be related to a lack of rigorous research and scientific evidence. An extensive review of the history, current challenges, and future research needs in the field of prenatal care by Alexander and Kotelchuck (2001) suggests that there is still not enough rigorous scientific evidence to establish causation between prenatal care and birth outcomes, health care utilization, health-seeking behaviors, and health care costs. The authors do, however, recognize

that prenatal care has proven to be effective in reducing maternal mortality and providing "numerous other maternal and infant health benefits" (Alexander & Kotelchuck, p. 116, 2001).

In their study on civilian versus military birth outcomes in African Americans, Barfield et. al (1996) argue that prenatal care is not universally beneficial unless the financial barrier to access is removed. Issues of access, utilization, and income create racial disparities that result in differences in birth outcomes, and the authors cite a need for further research on comprehensive strategies to ensure equity in birth outcomes (Barfield et. al, 1996).

Harvard Center for Children's Health, in conjunction with AHRQ, held a two-day conference to assess the evidence on the effectiveness of prenatal care (McCormick & Seigel, 2001). Reviewers determined that, though there is still not enough empiric evidence to relate prenatal care to major birth outcomes, a majority of studies have focused solely on vital statistics and birth certificate data. The reviewers cited these commonly used data sources as providing a limited basis for argument regarding the utility of prenatal care (Ibid.). Relying on birth certificate or vital statistics data leads to a focus on infant-specific outcomes, on which more research is needed. These documents do not account for maternal outcomes and infant conditions that may lead to death, but are not necessarily reported in vital statistics data (e.g. congenital malformations (Ibid.). They concluded that current *interventions* during prenatal care might not be effective in preventing *major* fetal adverse outcomes such as intrauterine growth restriction, prematurity, and birth defects. However, the evidence suggested that many of the potential causes of these outcomes are initiated in early pregnancy. This evidence establishes the importance of early access to the mitigating effects that prenatal care *does have* on reducing morbidity associated with these adverse outcomes (Ibid).

Connecting Prenatal Care with Maternal Morbidities

Maternal morbidities, prior to and during pregnancy, can affect outcomes for both the baby and the mother. Early access to prenatal care has mitigating effects on maternal morbidities during pregnancy. Without prenatal care, conditions such as gestational diabetes (GDM) and preeclampsia may go unrecognized in poor, uneducated, and/or vulnerable populations. For instance, the normal symptoms of pregnancy may mask symptoms associated with gestational diabetes, which can lead gestational diabetes to go undiagnosed in many women (Schaefer-Graf & Kleinwechter, 2006). Gestational diabetes, which can have dire consequences on the health of the mother or unborn child, is most often diagnosed during routine prenatal screening and must be followed closely. Otherwise healthy women should be at low risk of developing GDM; however, income, education level, and ethnicity are significant social determinants of the development of diabetes.

A vast amount of research has been conducted on women of varying cultures, in remote locations, and of lower socio-economic status, who do not obtain adequate prenatal care. A recent proposal to the Cochrane Collaboration plans to review studies that use incentives to motivate women of lower socio-economic status to obtain early, adequate prenatal care (Haas, Till & Everets, 2012). This review, which will include all pregnant women in randomized controlled trials, quasi-experimental trials, and cluster-randomized trials without language restrictions, will be the first of its kind. Because very few randomized controlled trials are conducted in the West Indies, it is unlikely that this review will include any women of West Indian decent.

A search of the term pregnancy within the Cochrane Library resulted in 720 reviews. A more delineated search of the term prenatal care within the Cochrane Library resulted in

approximately 60 Cochrane reviews, representing meta-analyses of thousands of studies on various aspects of maternal health and prenatal care. Meta-analyses on maternal health topics including prenatal education (Mario et. al, 2009; Khianman et. al, 2012; Gagnall & Sandon, 2011), antenatal testing for Down's syndrome and other congenital disorders (Alfirivec et. al., 2009; D'Mario et. al, 2009; Grivell et. al, 2009; Whitworth, et. al, 2010), pain management and symptom control (Barragan et. al, 2009; Ottoman, Jones, & Neilson, 2012; Smith et. al, 2011), and various labor interventions (Bahadue & Soll, 2012; Mori et. al, 2011; Roberts & Dalziel, 2010). These meta-analyses examine the utility of specific aspects of prenatal care in the prevention of maternal and neonatal morbidities.

While the aforementioned studies generally encompassed a variety of cultures and socioeconomic statuses, including studies conducted in the United States, Australia, Brazil, UK, none of the studies specifically targeted countries in the West Indies. Of the 720 reviews about "pregnancy", a search of the term "West Indies" resulted in only four meta-analyses. This is not to say that studies on West Indian antenatal care do not exist. In fact, Jamaica is a West Indian country where several maternal-child health studies have been conducted. However, sophisticated qualitative and experimental studies on quality and access to prenatal care, decision-making and health-seeking behaviors during pregnancy, and maternal child health outcomes are necessary in many more island nations to establish empirical evidence of the effectiveness of prenatal care in mitigating maternal morbidities in these populations.

Health-Seeking Behaviors During Pregnancy

Theory of Planned Behavior

In this population of women, the lack of utilization of freely accessible, quality, prenatal care services calls in to question behavioral intent. The *Theory of Planned Behavior* (TPB) is a well-known theory that has often been used in nursing research to explain and predict individual health behaviors and health care decision-making. The TPB assumes that "the best predictor of a behavior is behavioral intention" which is guided by an individual's *attitude, subjective norms, and perceived control* (Glanz et al, 2008, p. 68). The TPB, an update to the *Theory of Reasoned Action* with the addition of the construct for *perceived control*, focuses on individual motivations as the determinants of health behavior and provides a systematic way to examine reasons *why* individuals choose certain behaviors. External variables, including demographics, attitudes towards targets, personality traits, and other individual differences all contribute to an individual's behavioral beliefs, evaluations of behavioral outcomes, normative beliefs, motivation, control beliefs, and perceived power. These factors, in turn, influence the individual's attitude, subjective norms, and perceived control in their intent to conduct certain behaviors. Future studies on service utilization issues in St. Kitts can use the TPB to explain the women's health seeking behaviors and behavioral intentions. This study intentionally uses a more broadly descriptive theoretical framework that encompasses all aspects of health care utilization to gain a better overview of individual perceptions of the entire health system.

Societal and Individual Determinants for Health Care Utilization

The *Societal and Individual Determinants for Health Care Utilization* Model is a behavior model that helps better understand the relationship between societal determinants (technology and norms), the health services system (resources and organization), and individual

determinants (predisposing, enabling, and illness level) of health services utilization (Andersen & Newman, 1973). The overall purpose of the *Societal, Individual, and System factors for Health Care Utilization Theory* is to guide the analysis of the equitable distribution of health care in the United States. Empirical findings from studies using this theory can help explain patterns and trends in utilization. The original theory, as developed by Andersen in 1969 focused only on the individual determinants of health care utilization. Subsequent revisions of the theory have included societal, system, and utilization constructs. The most current version includes three major constructs containing multiple variables that impact the utilization of a health service.

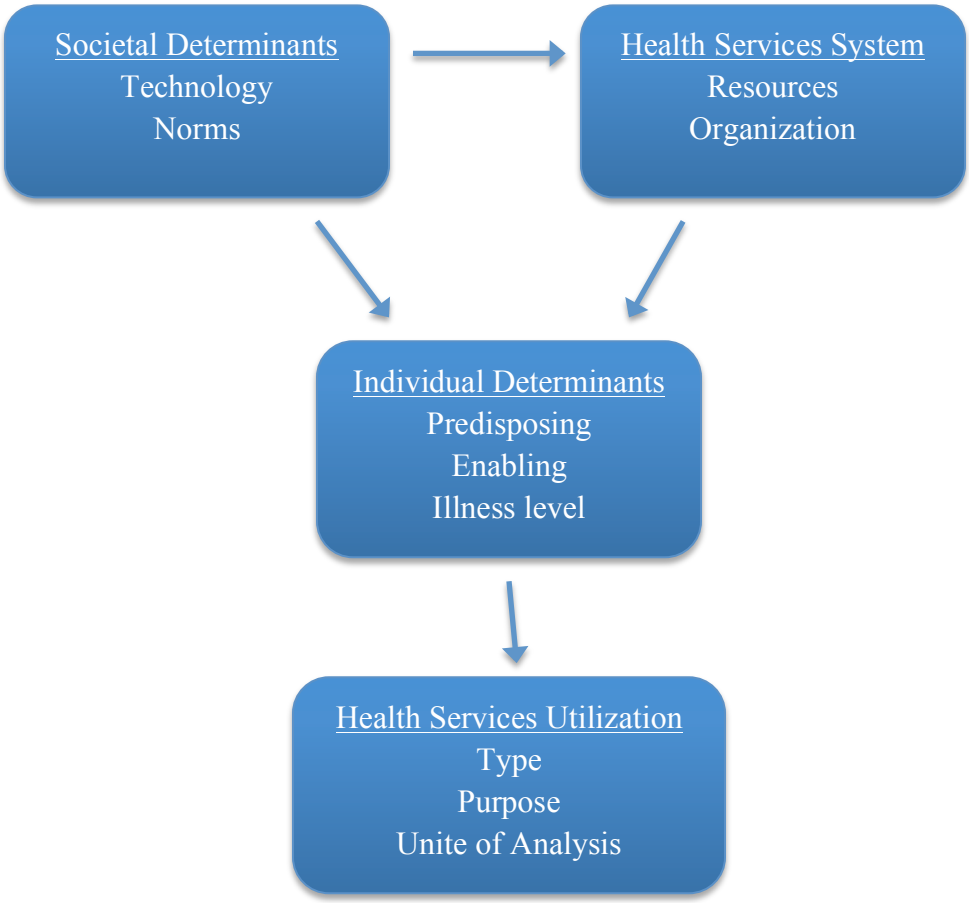
Societal Determinants. Refers to changes in medical technology and social norms related to health and illness. Variables within this construct include *technology* and *norms*. Societal determinants have an effect on both *Individual Determinants* and the *Health System* as indicated by the directional arrows.

Health Services System. Variables within this construct include *resources* and *organization.* System resources include labor and capitol, including health personnel, structures in which health care and education are provided, and the equipment and materials used in providing health services. *Organization* refers to how the system organizes and disperses its resources and how medical personnel and facilities are controlled and coordinated. Together, resources and organization help shape the provision of health services to the individual.

Individual Determinants. An individual's use of health services is dependent upon three variables: *predisposing, enabling, and illness level.* Predisposing characteristics include demographic factors such as age, sex, and marital status; factors related to the social structure such as education, occupation, and race; and beliefs/attitudes regarding health and health

services. Enabling characteristics include family and community related factors including income, insurance status, cost of services, and access to regular sources of care. Illness level characteristics refers to both perceived and evaluated illness and includes factors such as symptoms, diagnoses, and disability. Together, there are 28 variables help to explain/predict an individual's use of health services.

Figure 1. Original Model-Societal, Individual, and System Factors for Health Care Utilization (Andersen & Newman, 1973)



For this study, data pertaining to the constructs of *Societal Determinants*, *Health Services System*, and *Health Services Utilization* all served as contextual underpinnings for *Individual*

Determinants (See Figure 2). This is because pregnant or postnatal women, the individuals, were the unit of analysis for this study. Data regarding Predisposing, Enabling, and Illness Level Individual Determinants were gathered and analyzed via demographics forms and interviews with women. Data regarding Health Services System (resources and organization) and Societal Determinants (technology and norms) were gathered and analyzed through observations of care centers and interviews with providers.

Figure 2: Detailed View of Individual Determinants Construct-Societal, Individual, and System Factors for Health Care Utilization (Andersen & Newman, 1973)

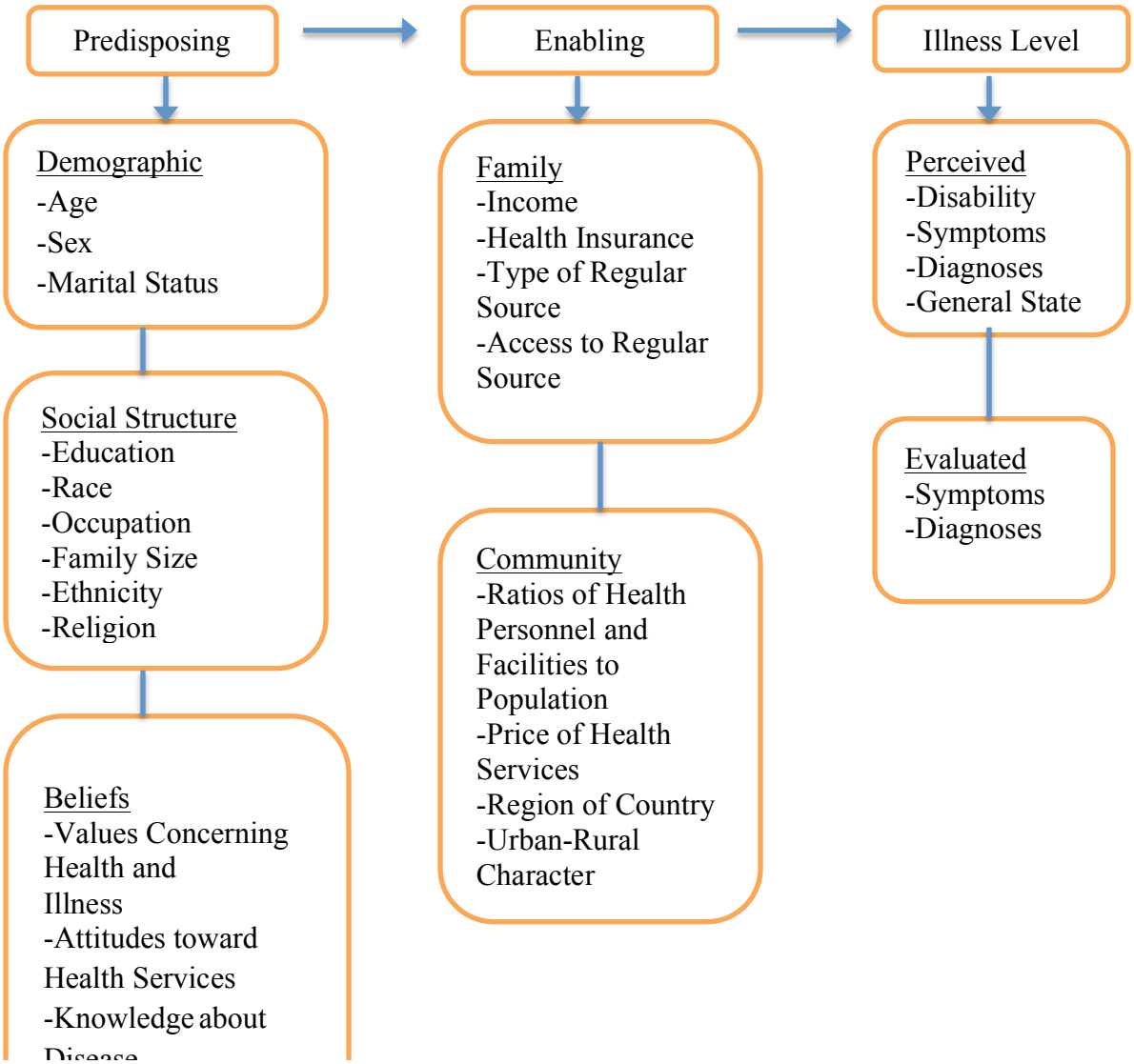
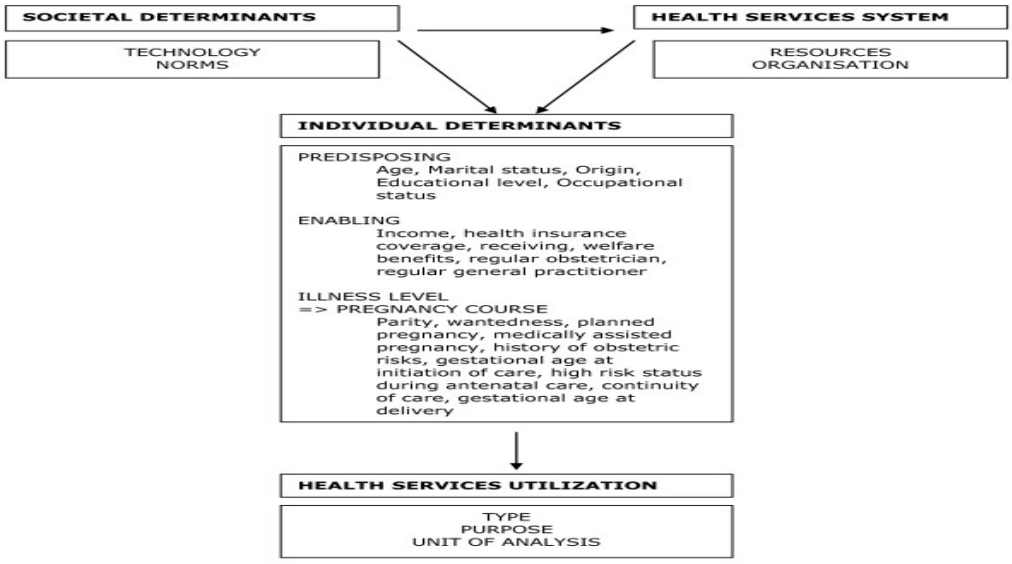


Figure 3: Societal, Individual, and System Factors for Health Care Utilization-Adapted for Pregnancy



The research conceptual model presented in Figure 3 is an adaptation of Anderson & Newman's model (1973), which illustrates factors and outcomes associated with health care utilization *during pregnancy*. The *Societal Determinants*, *Health Services System*, and *Health Services Utilization* constructs are unchanged from the original model. However, the concept of *Illness Level* within the *Individual Determinants* construct has been adapted to fit more closely with a condition that may or may not be viewed as an illness. In this adapted model five original factors (Perceived General Health, Perceived Symptoms, Perceived Diagnosis, Evaluated Symptoms, and Evaluated Diagnosis) were modified. Under *Illness Level*, Pregnancy Course includes relevant health factors during pregnancy including the following: parity, wantedness, planned pregnancy, medically assisted pregnancy, history of obstetrical risks, gestational age at the initiation of care, high risk status during antenatal care, continuity of care, and gestational age

at delivery. The original model focused, in part, on illness level as an individual determinant of health care utilization. The adaptation allows this theoretical framework to be more applicable to utilization factors associated with pregnancy.

Comparison of Maternal-Child Health Research in Another Caribbean Nation

The increased attention global health issues in nursing research suggests that it is no longer acceptable or appropriate to generalize health research findings in Latin America, or even in a neighboring West Indian island, to individual countries in the West Indies where cultures may appear similar but can vary greatly regarding language, religion, beliefs, knowledge, and available resources. However, an understanding of the maternal-child health trajectory in similar post-colonial islands can provide us with some understanding of maternal-child health progress in St. Kitts and Nevis.

French researchers in Martinique conducted a study that carries important implications about prenatal care seeking behaviors in the Caribbean in 1984. During the 1970's, the maternal and child health authority of Martinique instituted many changes that result in improved quality and access to community prenatal care services. These changes included ensuring easy access to free prenatal care for all pregnant women, designating certain public hospitals as referral sites for high-risk cases and concentrating low-risk deliveries to a few government hospitals, and developing an educational program for the trained midwives who staffed the community health centers.

Goujon, Papiernik, and Maine (1984) compared birth outcomes, demographic characteristics, and type of prenatal care for 5,511 women who delivered infants between 1980 and 1982 in Martinique. Three types of prenatal care were available to women in Martinique at

that time: 1) women could pay for private obstetrical care and delivery in a private hospital, 2) women could obtain free prenatal care and deliver for free in the government hospital, and 3) women could pay a private practitioner for prenatal care and then deliver for free in a public hospital. Goujon et. al. (1984) determined that the third group of women, which they titled *Other* also included women (14%) received no prenatal care at all.

Very little information about women in the *Other* group was available to the researchers, though they do not discuss why the information was unavailable. What they found, however, was that birth outcomes between the *Private Care* and *Public Care* groups did not demonstrate significant differences. The implication is that good obstetrical care did not require specialist services or high-tech equipment, and improvements in birth outcomes could be achieved through free community services provided largely by nurse midwives.

The study in Martinique parallels the situation of prenatal care in St. Kitts and Nevis, and has been used to inform this study, for several reasons. First, the government-instituted changes in the health care systems occurred during the same time-period for both St. Kitts and Martinique (between 1960s and 1970's). Second, both governments focused their attention on improving birth outcomes through preventative prenatal care provided by trained nurse midwives in community centers and deliveries in government hospitals. Third, birth outcomes have improved in both countries since these changes were instituted. The infant death rate in St. Kitts used to be a staggering 452/1000 live births and it has drastically fallen to 18.3/1000 in 2010 (Martin, 2011). In Martinique, the infant death rate fell from 40/1000 in the 1980s to 7.3/1000 in 2006 (CIA, 2005). Fourth, Goujon et. Al found that there is a subset of women within the *Other* group who did not receive any prenatal care but still delivered in the government hospital. This parallels the situation in St. Kitts, in that Ministry of Health officials believe that there are

women who opt for "high-tech" private care but deliver in the public hospital, and also women who are not receiving prenatal care at all.

Finally, and most notable, is the lack of information that Goujon et. al were able to obtain on women in the *Other* category. An estimated 1/3 of all births from 1980-1982 were to women in this category who either obtained private prenatal care or no prenatal care, but delivered in the government hospital. This is the group of women on which the Ministry of Health in St. Kitts and Nevis has little information. These are also the women who are most likely to be younger, poorer, and at increased risk of poor birth outcomes (Goujon et. Al, 2012).

Important parallels exist between pregnancy and prenatal care in Martinique and St. Kitts. First, the group of pregnant women who we often have the least information about, is the group of women who are at the highest risk of poor birth outcomes. Reaching these women to examine their reasons for not obtaining prenatal care, documenting demographic and descriptive data about their health seeking patterns, developing interventions and education programs tailored to this group, and evaluating birth outcomes is essential to improving the health of these vulnerable, often underserved, populations of Caribbean women.

Second, in 2006 the infant mortality rate in St. Kitts and Nevis was around 16/1000 live births, whereas the infant mortality rate in Martinique was 7/1000 live births during the same time period. Though St. Kitts' rate of infant mortality was more than twice that of Martinique's, the stark difference in the mortality rate at the commencement of health system changes in the 1980's for these two countries should be noted. What specific interventions led to the initial drastic decrease in infant mortality for St. Kitts? In light of the recent incremental increases in infant mortality in St. Kitts, we must consider whether these interventions continue to be effective. In Martinique, what interventions, if any, are currently contributing to the sustained

reduction in infant mortality? Though distance, colonial history, cultural differences, and resources separate these countries, parallels do exist in terms of each country's health history and comparable goals of reducing infant mortality.

Nursing Research Disparities in the West Indies

There is limited empirical health data, in St. Kitts, on which to build improvements in nursing practice. Minimal research has been conducted on maternal-child health in the West Indies. An OVID, Medline, and Pubmed search of a combination of the terms "West Indies", "Caribbean", and "maternal-child health" resulted in 44 publications. Of these, approximately 1/3 were anonymous opinion articles, and 2/3 were manuscripts on topics such as pediatric infectious disease, tropical disease, HIV testing, and international collaborations in Jamaica, Haiti, Dominican Republic, Cuba, and El Salvador. None discussed health-related issues in St. Kitts and Nevis.

Of 98 manuscript results from an Ovid search using only the key word "St. Kitts", only three articles focused on maternal or child health, and all three studies are over 30 years old. A majority of results from this search were publications from the Ross School of Veterinary Medicine, located in Basseterre. The dearth, if not absence, of literature on West Indian health represents a significant knowledge gap and translates into a lack in our ability to reduce the global burden of disease and meet the Millennium Development Goals. Improvements in the health of this population are desperately needed if any of these global health goals are to be met. The lack of research in this population highlights the ongoing health disparities that exist, and these disparities must be eliminated to improve prevention and health promotion strategies for the entire population.

More research needs to be conducted in individual West Indian islands where issues such as colonial history, industry, religion, health system structure, and varying cultural beliefs and practices are likely to play a large role in population health and health services. Studies on quality and access to prenatal care, decision-making and health-seeking behaviors during pregnancy, and birth outcomes are necessary in these populations to establish targeted interventions. Prior to implementing a new approach to care, the cultural tapestry needs to be explored to ensure that a theoretical intervention will be effective and that it is appropriate for that population.

Introduction to St. Kitts and Nevis

The Federation of St. Christopher (St. Kitts) and Nevis is a two-island nation located in the Leeward Islands of the West Indies. The smallest sovereign state of the Americas, and among the first to be colonized by the Europeans, these two small islands lie directly to the east of Puerto Rico and to the north of Venezuela. St. Kitts and Nevis was first colonized by the British in 1628, was intermittently controlled by France, and was finally ceded back to the British in 1713. The nation remained under British control until very recently when it gained independence in 1982. The health care model that remains is evidentiary of the British influence (P.Martin, personal communication, 2011).

St. Kitts encompasses a land mass area of approximately 68 square miles covered in dense tropical rainforest and volcanic mountain peaks. Politically, the Federation is run by a commonwealth government and is divided into fourteen parishes: nine on St. Kitts and five on Nevis. Economically, the majority of the gross domestic product from the islands is from the strong tourism industry, light manufacturing, and sugar mills. People of African, mulatto, and Indo-Pakistani decent make up a majority of the demographic, with a culture that is heavily

based on jazz, soca, steelpan, and calypso musical celebrations. The island boasts the International University of Nursing (IUON), the University of Medicine and Health Sciences (UMHS), and the Ross School of Veterinary Medicine.

Historical Perspective on Health

Prior to the country's independence from Britain in 1983 (CIA,2013) several important events served to shape the future of the health of the nation. In the early 1900's to the 1950's, poor social conditions, overcrowded housing, lack of proper sanitation, and unclean water led to high death rates from communicable diseases (Martin, 2012). Epidemics of infectious diseases including pertussis, cholera, filiariasis, chiggers, scabies, dengue fever, yellow fever, and malaria, resulted from the aforementioned health risks. In the 1920's, the rate of infant deaths was 452/1000 live births (Martin, 2013). In 1951, there were more than 300 reported active cases of tuberculosis in St. Kitts and Nevis. During this colonial era, the focus of the health system included increasing vaccination rates, provision of clean water and food, improvements in housing and sanitation, and basic survival (Martin, 2013).

However, in 1936 the issues of racial inequity and conflict came to a head during the Riot's at Buckley's Estate (also known as "The Caribbean Spring"). Low wages for estate sugar cane workers led to discussions and debate about bonuses and increased pay between estate owners and servants (Alexander & Parker, 2004; St. Kitts and Nevis National Archives, 2013). While a few estate owners supported increased pay for workers, many others did not. After cane workers at Buckley's Estate were refused increased pay, strikes of 300-400 workers from various estates ensued (Alexander & Parker, 2004; St. Kitts and Nevis National Archives, 2013). These strikes led to the burning of cane fields, destruction of farm carts and other equipment, and large demonstrations throughout the streets of Basseterre. Estate owners retaliated with violence,

killing three men and injuring eight more (St. Kitts and Nevis National Archives, 2013). When police were unable to contain the demonstrations and violence, British armed forces from Antigua and Bermuda were summonsed. Though a violent and tenacious time in Kittitian history, the result of The Caribbean Spring, which spread throughout British West Indies, was reform of social health and welfare (St. Kitts and Nevis National Archives, 2013).

The Moyne Commission was established in 1936 by the British government, with the purpose of evaluating the reportedly unjust social conditions to which native Caribbean people were being subjected (Moyne et. al, 1945). By 1945, the Moyne report recommended sweeping reforms in governance and social conditions for Caribbean people under British rule. The report included the suggestion that universal adult suffrage be instituted (Moyne et. al, 1945). In 1952, universal adult suffrage was granted to native Kittitians, leading to representative legislature and attention to the pressing needs of the poor. By the 1970's, great strides had been made in reducing morbidity and mortality from communicable diseases and increasing adult life expectancy. However, it was not until 1983, when St. Kitts and Nevis ceded from Britain and established its own governance that additional progress to the country's health profile ensued (Martin, 2012).

The Federation of St. Kitts and Nevis was established in 1983. It is governed by a constitutional monarchy and multi-party democracy with Queen Elizabeth II as its Head of State. The National Assembly is composed of 15 elected officials. Eleven members of the National Assembly (eight from St. Kitts and three from Nevis) serve five-year appointments (St. Kitts and Nevis Government, 2013). The remaining official is the attorney general. The Governor-General reports directly to the Queen, under the advice of the elected Prime Minister. Elections occur every 3-4 years. The St. Kitts National Labor Party recently won its fourth term in office

(2010), making the party the political leader since 1995. The Honorable Dr. Earl Asim Martin began his term as the Minister of Health and Women's Services in 1995, when Prime Minister Denzil Douglas of the St. Kitts-Nevis National Labor Party appointed him. After the Labor Party won elections again in 2000, he was appointed a second term as Prime Minister of Health and Environment (St. Kitts and Nevis Government, 2013).

St. Kitts and Nevis is the newest sovereign state in the Americas, which presents its own set of unique opportunities and challenges for the relatively young Ministry of Health. Prior to independence in 1983, service foci included basic survival, clean food and water, immunization, housing, and sanitation as a result of widespread communicable disease (Martin, 2012). Because of changes in social conditions as a result of the Moyne report, communicable diseases and poor social conditions became less prevalent. Post-independence priorities focused on increases in chronic disease and other non-communicable diseases, obesity, mental illness, injuries, homicide, and substance abuse. This led to a service focus on lifestyle, social determinants of health, social protection, and sustainable development (Martin, 2012).

Today's Health System Structure

The Federation of St. Kitts and Nevis is separated into 14 parishes; nine on St. Kitts and five on Nevis. The Minister of Health and Environment, along with the Chief Medical Officer and Permanent Secretary, are tasked with overseeing medical care for all 14 parishes including community health and health institutions (Martin, 2012). The primary functions of Ministry of Health officials are policy, planning, budgeting, and research. Community Health Centers (CHCs) focus on health promotion, environmental health, and family health. Health institutions include the hospitals, rural health urgent care centers, and long term care facilities (Martin, 2012).

Health System Focus

The major focus of the current health system is on primary care. Essential public health functions include protection, prevention, and early intervention; research and measurement; and disaster preparedness and mitigation. Their motto "The Health of the Nation is the Wealth of the Nation", speaks to the philosophy of the Ministry of Health. They believe that access to healthcare is a human right, that the government has a central role in ensuring the health of their people, and that Caribbean people within the region should maintain a unified effort for health. Strategic goals of the Ministry of Health include: attaining the highest possible level of health (people living healthier lives); individual responsibility for health (improving health-seeking behavior); health system responsiveness (universality, quality, sufficiency, patient/provider satisfaction); and protection against financial hardship (affordable and sustainable care) (Martin, 2012). Six priorities areas of focus for the Ministry of Health include: non-communicable diseases, nutrition, and physical activity; sexually transmitted infections; mental health including substance abuse; health of the family; health of the environment; and health systems development (Martin, 2012).

Private vs. Socialized Care

A majority of medical care is socialized. The government of St. Kitts and Nevis provides nearly free (97% subsidized) care to all citizens on both islands. A few services, including prescription medications, private hospital rooms, and surgery, are provided at minimal expense. Services are provided at 17 community health centers throughout St. Kitts and Nevis and all citizens are within a five minute walk of a community health center. Medical services at CHCs include obstetrics and gynecology, pediatrics, geriatrics, primary and preventative services, immunizations, and minor emergency care. Secondary and tertiary care is provided at Joseph N.

France General Hospital, Pogson Emergency Clinic, Mary Charles Hospital, and Cardin Home in St. Kitts; as well as Alexandra Hospital and Flamboyant Nursing Home in Nevis.

Community health center and nursing home services are primarily provided by registered nurses who have received an additional year of nursing education in midwifery. However, weekly clinics and as needed appointments for higher risk cases are also provided by physicians at community health centers. Either a private physician or hospitalist, based on patient preference, attends all hospitalized patients. Many of the physicians maintain private specialty practices and have a dual-appointment with the Ministry of Health as hospitalists. Hence, basic medical care is easily accessible and low cost.

Limited private and/or specialty care services are available on St. Kitts and Nevis. Currently, obstetrics and gynecology, pediatrics, and anesthesiology are offered privately. Patient education at private offices is limited by time and physician workload, and most private offices do not employ nurses. Hence, a majority of patient education occurs through appointments or group sessions at community health centers. Because a vast majority of individuals do not maintain health insurance, payment for private or specialty care is out-of-pocket. High technology specialty care, such as chemotherapy, dialysis, and magnetic resonance imaging are not yet available in St. Kitts and Nevis. Patients requiring these services must travel to a nearby island, at personal expense or through private insurance, to obtain these services.

The public sector is by far the largest employer of medical professionals. In 2000, 37 physicians, four dentists, eight dental auxiliaries, 198 nurses, 65 nursing assistants/community workers, 10 pharmacists/pharmacy technicians, 12 laboratory technologists or technicians, 5 radiographers/technicians, 21 emergency medical technicians, 3 nutritionists/dietitians, 4 health educators, and 17 environmental health officers provided medical care to residents of St. Kitts

and Nevis (PAHO, 2013). The private sector included 11 pharmacists, five dentists, and nine physicians.

Specialty Care and Insurance

Currently there is no national health insurance. Approximately 30% of the population maintains private health insurance either through employer group plans, government employee plans, or individually purchased plans (Ball et. al, 2013). Insurance coverage typically includes medications, preventative care, psychiatric care, and hospital care during travel abroad (PAHO, 2013). For the uninsured, Social Security provides some benefits including worker's compensation. Because community health care and hospital care are 97% subsidized by the government, medical insurance is rarely required unless an individual requires specialty care on or off island. On island, specialty care medical services are limited. Individuals who require specialty care (e.g. dialysis, chemotherapy) must travel off-island to neighboring Trinidad or Cuba for care. Medical insurance coverage is used for these purposes, since government subsidies do not cover these costs.

Nursing Workforce

For every 10,000 people, St. Kitts and Nevis employs 13 physicians and 32 nurses (Martin, 2012). A majority of nurses employed in St. Kitts are educated at the local Clarence Fitzroy Bryant College. Though the island boasts an offshore medical school, nursing school, and veterinary school, individuals trained at these institutions typically obtain employment in the United States. Clarence Fitzroy Bryant College, founded in 1988, offers degrees in arts, sciences, and general studies; teacher education; adult and continuing education; technical and vocational education; and health sciences. The Division of Health Sciences offers an Associate Degree in Nursing (A.D.), nursing assistant certification, and midwifery certification. A new

Bachelor of Science in nursing degree (B.Sc.) commenced in 2012. The Bachelor of Science in nursing degree is similar to that of the United States. Eight semesters, four full-time years of study, and 120 credits are required for completion of nursing school. An additional one year of midwifery education is required of all nursing school graduates, though the additional education is not required to be taken consecutively. Typically, nursing graduates enter the workforce for a short period of time (1-2 years) until the nursing school has space for them (based upon class size and course offerings) to enter the midwifery certificate program. The additional year of education is a policy that was instituted in the mid 1950's as an intervention for the high rate of infant mortality (450/1000 live births). This policy is credited for the drastic reductions in infant mortality to date.

Health Institutions

The health system is comprised of 17 community health centers, two urgent care centers, two main hospitals, and two public nursing homes.

General hospitals. Joseph N. France General Hospital, located in the capital city Basseterre, is an 80-bed facility that offers emergency, acute, and intensive care. Originally a 150-bed facility, damages from a 1998 hurricane have reduced its capacity. There were approximately 3,000 hospital admissions annually between 1998-2000 (PAHO, 2013). Alexandra Hospital, located on Nevis, is a 54-bed medical facility offering emergency, acute, and intensive care services. In 2000, there were approximately 1,350 admissions (PAHO, 2013). With the influx of tourists during the busy tourism seasons, the Ministry of Health provides medical care for an additional 20% of individuals traveling on cruise ships or vacationing on the islands (Martin, 2013).

Urgent care centers. Two rural hospitals serve as urgent care centers on the island of St. Kitts. Pogson Hospital is located in the Sandy Point Parish on the mideast cost of the island. Recently renovated in a $6 million dollar project in 2009, the hospital provides a labor and delivery suite; a radiology unit; a pharmacy; a dental unit; and a medical services unit. Mary Charles Hospital in Molineux Parish, on the northwest coast of St. Kitts, offers similar urgent and secondary care services. Combined, these two urgent care centers maintain 32 beds (PAHO, 2013). Cardin Home, a 100-bed unit in St. Kitts, and Flamboyant Home, a 24-bed unit connected to Alexandra Hospital in Nevis, are long-term care facilities for the disabled and geriatric patients.

Community health centers. To address the current health issues of increasing chronic disease, the Ministry of Health in St. Kitts and Nevis provides free community preventative and primary medical care to residents through community health centers located in each of the 14 parishes on the islands. Free services include women's health, men's health, immunization clinics, child health, health promotion, and prenatal care.

Prenatal care services are provided by nurse midwives trained under the United Kingdom model, and include free midwifery services at the time of delivery. The provision of free prenatal care through community health clinics ensures that all pregnant women have access to prenatal screenings, education, nursing care, and diagnostics. However, the Chief Medical Officer of the Ministry of Health has pointed out the overall lack of participation in these free services. The reasons for the lack of service uptake are currently unclear, but may include a preference for alternative medicine, reluctance to visit the health center for social reasons, a preference for private prenatal care, or the inability to physically get to the center. The focus of the Ministry of Health is to make resources available to increase the uptake of preventative care

services, and impact birth outcomes in a preventative manner. Despite the knowledge that the services are not being used, and the evidence that adequate prenatal care affects birth outcomes, the lack of health research in this area prohibits policy makers and providers from understanding the underlying reasons *why* the services are not being used, and *how* to further address these issues.

Contemporary Health Profile

"St. Kitts is an underdeveloped country with the health profile of a developed nation" (P. Martin, personal communication, 2011). As aforementioned, prior to independence, the Ministry of Health was charged with the task of reducing high rates of communicable disease. Changes in public health policies led to the drastic reduction of communicable disease, but the contemporary health profile includes high rates of chronic illness. With the influx of money from tourists on cruise ships docking daily during the busy season, and the growing supply of fast food chains, diabetes and obesity have quickly become the nation's most critical health concerns. In 2010, the population of St. Kitts and Nevis was estimated at 52,650, with approximately 38,000 residing in St. Kitts and the remainder in Nevis. Since the country gained independence from British rule in 1983, the prevalence of communicable diseases has decreased (4% of mortality from HIV, Dengue, and Leptospirosis) but chronic disease prevalence in increasing. The life expectancy of Kittitian and Nevisian nationals was 74 years in 2010 (Martin, 2012). Non-communicable conditions, including cardiovascular disease, cancer, and diabetes comprise 2/3 of all deaths (Martin, 2012). Drivers and health risks associated with these conditions include 1) high processed food diets coupled with inactivity, leading to obesity; 2) harmful sexuality, leading to early sexual debut for teens and sexually transmitted infections; 3)

child abuse and/or neglect, leading to psychological maladjustment; and 4) substance abuse, leading to addictions (Martin, 2012).

Chronic Disease Risk Factors

The 2008 Pan American Health Organization Chronic Disease Risk Factor Survey for St. Kitts and Nevis produced staggering statistics regarding adult health in St. Kitts and Nevis. Ninety-seven percent (97%) of adults reported that they consume less than the recommended five daily servings of fruits and vegetables, and 35% reported a diagnosis of hypertension. Approximately 33.5% of adults are categorized as overweight with an additional 45% categorized as obese. This places a staggering 88.5% of the population at higher risk for cardiovascular disease. In terms of harmful addictions, 21% of females and 28% of males reported that they consume at least five alcoholic beverages per day.

Health Knowledge, Beliefs, and Practices

A Jefferson Public Citizens research team, including Jamela Martin (Principal Investigator), Marcus L. Martin MD (Faculty Advisor), Elizabeth Grace Ball, Ania Giffin, Rachael Hanna, Suraj Mishra, and Kenny Perez-Lorenzo, conducted a concurrent study in June 2012 in addition to this dissertation study. The concurrent study focused on underutilization of health centers for the general (not specifically pregnant) population in St. Kitts and Nevis. A cross-sectional, KAP survey design was used to elicit information about resident's perceptions of the health system as well as their health knowledge, attitudes about being healthy, and health practices. Quantitative data from this study, *Underutilization of Community Health Centers in St. Kitts and Nevis* (Ball, et. al, 2013), is herein used to provide additional contextual data as well as supportive documentation for the qualitative dissertation study.

The 52-item multiple choice and short answer survey was comprised of a Demographics

form, Knowledge, Attitudes, and Behaviors Questionnaire, and a Health Utilization Questionnaire. A majority of the questions were drawn from the Behavior Risk Factor Surveillance Survey, the National Health Interview Survey, and the National Health and Nutrition Examination Survey.

Of the 498 participants surveyed, 398 were residents of St. Kitts and 100 were residents of Nevis. This sample was representative of approximately 1% of the population on each island. A majority of the participants were male (56.4%), single (60.7%), and maintained private medical insurance (69.1%). Over four hundred of the participants identified themselves as black (82.3%) with the remainder in the Mulatto (6%), White (1.6%), East Indian (2.4%), Asian (0.8%), and Other (3.8%) categories. While 16.5% (n=82) participants did not wish to provide information regarding annual income, 63.1 % of participants reported that they earn $29,999 EC (East Caribbean Dollars) or less annually. This is equal to approximately $11,110 USD annually. Forty-nine (49%) of participants reported completion of high school with an additional 32.8% reporting additional vocational, college, or professional education.

Fifty percent (50%) of the sample feels that their general health is either very good or excellent. Over three hundred of those surveyed (69.5%) reported that they have had their blood cholesterol checked at least once, and 75.5% of those surveyed reported that they have not been diagnosed with high blood pressure. Almost 400 of the 498 (78.7%) surveyed participants reported that they have never smoked cigarettes.

Fifty-nine percent (59%) of the sample believes that they receive the best medical care at private offices, and 56% said that they normally go to a private doctor for non-emergency care. A striking 38.4% of respondents stated that within the past 12 months there was a time when they needed to see a care provider, but failed to do so.

There was a difference (p=0.04) in weekly physical activity level (running, jogging, walking) depending on gender. Males reported more physical activity outside of the job than did females. There was also a significant difference (p=<0.001) in reports of alcohol consumption between genders. Surprisingly, female participants reported higher consumption of alcohol on a weekly basis than did males.

Select questions were evaluated for how well knowledge, attitudes, and practices correlate. For the correlation between a participant's Knowledge and Attitude, two relationships were evaluated: How does perceived health status correlate with how often one should visit their provider? How does perceived health status correlate with perceived quality of care at health centers?

There was a low (r=-0.21), non-significant (p=0.17), correlation between perceived personal health status (poor, fair, good, very good, excellent) and a participant's attitude about how often s/he should visit a care provider. There was, however, a significant (p=<0.001) moderate correlation (r=0.40) between a person's perceived health status and perception of care quality at community health centers. Those who perceived the care at community centers to be good or excellent also perceived their personal health status to be good, and vice versa.

For the correlation between Attitudes and Practice, the following question was evaluated: How does perceived quality of care correlate with how often a person failed to visit a provider in the last 12 months? There was a significant (p=<0.001) moderate correlation (r=0.5) between a participant's attitude about the care received at community health centers (poor, fair, good, very good, excellent) and how often the individual needed to see a provider but failed to do so in the past 12 months. Participants who perceived the quality of care at community health centers to be poor, also reported failure to visit a provider even when they believed they needed

to be seen.

For the correlation between health knowledge and health practices, the following two questions were evaluated: How does a person's knowledge of a chronic disease diagnosis (hypertension) correlate with how often they did physical activity? How does a person's perception of personal health status relate to the length of time since s/he last visited a community health center? For both of these relationships regarding health knowledge and health practices, there was no significant correlation ($p=0.21$ and $p=0.32$ respectively). In other words, the participants in this survey did not reinforce the expected relationship between health knowledge and resultant health practices.

Contemporary Issues During Pregnancy

In this population of Kittitian women where the overconsumption of salty and sugary foods is prevalent and 88.5% of the population is overweight, thorough screening for pre-existing conditions during pregnancy may save lives (Snyder, 2011). In addition to identifying lifestyle or environmental factors and medical issues that put the mother and baby at risk (Shi,2004) prenatal care may serve as a woman's initial entry point into the medical care system and provide an opportunity for depression screening and health education (Shi,2004). Increasing first trimester prenatal care may lead to improvements in birth outcomes for these families. The utility of prenatal care in limiting poor maternal-child outcomes, in this population, cannot be determined until further research is conducted regarding the women's experiences regarding access, quality, and use of available prenatal care services

Global, Regional, and Local Health Policy

The aims of this dissertation study match closely with strategic plans and health policy at global, regional, and local levels.

United Nations Policy

The United Nations Millennium Campaign includes eight development goals with a target date of 2015. The purpose of this campaign is to establish, among world leaders, a common framework for improving the lives of the world's poor. The eight goals include eradicating extreme poverty and hunger, achieving universal access to primary education, promoting gender equality and empowering women, reducing child mortality, improving maternal health, combating HIV/AIDS, Malaria and other diseases, ensuring environmental sustainability, and developing a global partnership for development (United Nations, 2013).

Two of the eight Millennium Development Goals focus on maternal and child health and are directly relevant to this research. Millennium Development Goal 4 focuses on child health, with a goal to reduce by 2/3 the under-five mortality rate between 1990 and 2015. Millennium Development Goal 5 contains two sub-goals. The focus of goal 5a is to reduce by ¾ the maternal mortality ratio and the focus of goal 5b is to achieve universal access to reproductive health, both by 2015.

A third goal that is highly relevant to this research is Goal 8: developing a global partnership for development. This goal has several sub-goals including goal 8c: Address the special needs of landlocked developing countries and small island developing states. The overarching purpose of Goal 8 is to increase development assistance donations from larger donor countries (e.g. Sweden, United States, Denmark, France, Germany, Japan) to be provided to the poorest and least developed countries, including developing island states.

Pan American Health Organization Policy

In addition to the WHO Millennium Development Goals, the Pan American Health Organization, the regional governing body for St. Kitts and Nevis, presents 16 strategic objectives in their Strategic Plan 2008-2012 as the core instrument for planning and programming for its member states (PAHO 2009). The 16 strategic goals are further defined in Appendix A , and the strategic goals specifically related to this research are referenced here. The aims of this research directly address: *Strategic Objective 4 (SO4)*-To reduce morbidity and mortality and improve health during key stages of life, including pregnancy, childbirth, the neonatal period, childhood; and *Strategic Objective 6 (SO6)*-To promote health and development, and prevent or reduce risk factors such as use of tobacco, alcohol, drugs and other psychoactive substances, unhealthy diets, physical inactivity and unsafe sex, which affect health conditions.

Caribbean Community Secretariat (CARICOM)

Nationally, the Caribbean Community Secretariat (CARICOM) sets policy agenda for 15 member states, and 5 associate members, in the West Indies (Powers, 2011). The nine objectives of "The Community" as it is often called are further defined in Appendix A. The objectives that related directly to this research are referenced here.

This research addresses CARICOM Objective 9c: enhanced functional cooperation including intensified activities in areas such as health, education, transportation, tele-communications. Though most recent policy statement does not directly address maternal-child health, recent changes in policy related to water, sanitation, nutrition, and primary health care have benefitted women and children (CARICOM, 2005).

St. Kitts and Nevis Ministry of Health

The St. Kitts and Nevis Ministry of Health sets local health policy. Their strategic agenda begins with prevention, health promotion, and early intervention and includes the four major action areas of *Effective Stewardship; Health Promotion; Integrated Family-Centered, Community-Based Services;* and *High-Quality, Sustainable Personal Medical Services* (Martin, 2011; Martin, 2012; Martin, Martin & Faulkner, 2011). By 2015, the Ministry of Health intends to realize the following further improvements in health: Life expectancy increased from 74 to 78 years; decreased infant mortality to 15 per 1000 live births; fully staffed community outreach, mental health, and emergency medicine programs; decreased morbidity related to overweight (by 10%), homicide (by 50%), and HIV (to <1%); and increased funding for health services (Martin, 2012). The aims of this study address multiple strategic goals from global, regional, and local levels by focusing on key health indicators of healthy mothers, reduced infant mortality, and service utilization.

Importance to Nursing Research

The proposed research project represents creativity and innovation in nursing research in two distinct ways. First, the investigator's focus on a vulnerable population of women almost entirely overlooked in maternal-child research in this area will produce information to assist the local government and international aid agencies in evaluating the strengths and weakness of the provision of prenatal health care and will document in greater detail the health needs of this country. The contribution to the body of nursing literature, and medical literature in general, will be the first in over 30 years to focus research on St. Kitts and Nevis. This will establish a foundation for future funding and support for the investigator's maternal-child health research in the West Indies. Though this particular nation state will be the focus of this exploratory study,

the researcher intends for this to be the beginning of a program of research that focuses on improving access to prenatal care in order to improve maternal and birth outcomes for other underserved populations both at home and abroad.

Second, the methodological approach for this project is innovative in that a *focused ethnographic* (referred to by some researchers as *qualitative descriptive with ethnographic overtones*) design will be used (Sandelowski, 2000). In-depth understanding of the needs of a vulnerable population related to a specific topic will inform the direction of necessary interventions in the future. This adds to the depth and quality of the research and decreases the potential for the development of ineffective interventions (Sullivan, Bova, & Harper, 2005). The importance of using a focused ethnographic design is evident in that this design allows the researcher to tailor the approach within the complex cultural and contextual issues that typically embed health disparities (Sullivan, Bova, & Harper, 2005). Interventions to reduce these health disparities must be feasible for the location, acceptable to the population, and adequately address the issues of access, quality, and use (Sullivan, Bova, & Harper, 2005). Since little data exists about Kittitian pregnant women, understanding the cultural tapestry and local implications of the study before embarking on the intervention will provide critical data that will strengthen the process and make the results more applicable for the people of St. Kitts.

Summary

To reduce the global burden of disease and make progress towards meeting the Millennium Development Goals of improving maternal health and decreasing infant mortality, research in previously overlooked locations must be conducted. It is as important as ever to begin to de-aggregate Latin American and Caribbean data to hone in on location-specific needs.

These countries contribute significantly to world health, thus attention to the health of these populations is warranted and overdue. In a country such as St. Kitts and Nevis, innovative, cost-effective, and easily implemented interventions may increase the rate of uptake of free prenatal care services and decrease the infant mortality rate, but culturally relevant data to inform interventions to improve utilization of prenatal care must first be collected. A model of prenatal care using culturally sensitive and acceptable interventions can be implemented in other areas where infant mortality is high and the use of prenatal care services needs to be improved. Such a model also carries important implications for use in rural parts of the U.S. and with urban or suburban pregnant woman.

CHAPTER THREE: RESEARCH DESIGN AND METHODS

Purpose and Aims

The purpose of this focused ethnographic study was to better understand issues of prenatal care service under-utilization in St. Kitts and Nevis. To accomplish this, two aims were developed. They were:

Aim 1: To describe the experience of prenatal care from the perspective of the women, providers, and policy makers in St. Kitts and Nevis (hereafter referred to St. Kitts and Nevis when referring to the entire nation, and St. Kitts or Nevis when referring to a specific island); and,

Aim 2: To document the barriers and facilitators to full community use of free prenatal care services. These aims were accomplished by conducting interviews with women about their experiences, or lack thereof, of prenatal care who are between the third trimester of pregnancy and one year postpartum; conducting interviews with providers and policy makers about the health system; and observing the culture of prenatal care in the community health centers, hospital obstetrics ward, and other appropriate locations.

This study serves as a foundation for future intervention studies in West Indian Health, which will seek to help decrease maternal-child health disparities relative to infant prematurity and infant mortality, all of which are priorities for nursing research (NINR, 2011).

Approach

A qualitative research approach was used for this *focused ethnographic* study. This was the most appropriate method for this study because of the multi-faceted purpose of eliciting

individual meanings, understanding the cultural context surrounding the issues, remaining in alignment with the goals of the Ministry of Health, and providing a foundation of qualitative data useful in planning future studies. This study sought to: assess the meanings and beliefs important to the study population; explore the cultural context that shapes the meaning of pregnancy; serve the higher purpose of contributing to nursing research and improvements in health care; and align the study aims with the goals of the health system governing the delivery of services to the target population.

To meet these goals, it was imperative to speak directly with women who have experienced pregnancy to understand what it means to them, to speak with health providers who have knowledge about health system processes and goals, and to directly observe the culture of prenatal care in community health centers where prenatal care occurs.

Pregnancy, delivery, and motherhood are inherently powerful, value-laden, and emotional experiences, particularly in Caribbean cultures (Sutton, 1998; Shostak, 1981; Lazarus-Black, 2001; K. Schlader, personal communication, 2011). In many Caribbean cultures, the birth of a child is seen as evidence of 'sexuality, fertility, and coming of age', and marks the progression into adulthood (Barrow, 1996; Lazarus-Black, 2001). If one of the tenets of quantitative research is to seek objective, value-free, observable data (Trochim, 2006; Ulin et. al, 2005), then choosing a quantitative approach would have hindered the evaluation of the meanings women place on pregnancy, and the rationale informing their decision-making. Furthermore, to do this would completely ignore the St. Kitts and Nevis specific cultural meaningfulness of childbirth. Another intent of qualitative studies is to discover and gather insight into the circumstances of behavior (Silverman, 2000), which provides more evidence about the women's reasons for decision-making regarding prenatal care. Identifying, sorting,

and analyzing the contextual experiences and behaviors regarding the use or non-use of prenatal care allowed an examination of the similar and differing constructions of the meaning of pregnancy. This can help explain the patterns of behavior. Thus, a qualitative approach was deemed most appropriate to address the study's purpose and aims.

The St. Kitts and Nevis Ministry of Health continually evaluates health outcomes and implements approaches to improve population health. Prior to implementing a new approach to care, one benefits from exploring the cultural context of the target population and existing clinical settings. This information helps support the appropriateness and effectiveness of a proposed intervention. A qualitative approach helped to achieve this goal given its systematic, flexible, and iterative process. As posited by Briggs (1987), understanding the cultural context first requires a grasp of the sociolinguistic style(s) of the people under study, which was addressed via the use of interviews. Sociolinguistics refers to the study of language given a specific social and cultural context (Briggs, 1987). A participant's linguistic style, including his/her choice of sounds, vocabulary, and grammatical elements can be influenced by the surrounding social and cultural milieu. Emphasis on, or substitution of, certain words may change the meaning of a statement. As such, quotes from interviews (in Chapter Four-Analysis), are presented in their original (unedited) linguistic style. By first conducting qualitative interviews, understanding the needs of pregnant women in St. Kitts and Nevis informs the next step. Data regarding patterned behaviors and values about prenatal care, from the individual, clinical, and environmental contexts, provides clear descriptions of the factors that promote access and use of free medical services from the perspective of the target population (Sullivan-Boylai et al, 2005).

Of 98 manuscript results from an Ovid search using the key word "St. Kitts", only three articles focused on maternal or child health. All three studies are over 30 years old. The dearth of literature on West Indian health represents a significant lack of knowledge about how to further reduce the global burden of disease in these populations. The lack of research in this population, in particular, highlights the ongoing health disparities that exist. Prevailing literature infers that elimination of disparities will require a preventative approach (CDC, 2012; CDC, 2013; Satcher & Higginbotham, 2008). Qualitative data, whose focus is understanding behaviors and beliefs, is supportive of the St. Kitts and Nevis Ministry of Health focus on early intervention strategies for prenatal and postnatal care. (Creswell, 2007).

Though empirical data on the lack of service uptake in the St. Kitts and Nevis community health network is limited, the Ministry of Health is generally aware of what is occurring. Thus it was imperative that this study aligned with the Ministry of Health goal to determine why women are not using the free services fully. To assess this phenomenon,, and to deconstruct the broad range of reasons for consideration, a qualitative approach was employed. Just as important in the selection of the design is the need to meet the current body of knowledge where it stands, and build upon what is known.

Philosophical Grounding

Philosophical grounding for much qualitative nursing research comes from an interpretivist (Hermeneutic) paradigm, (Ullin, Robinson, & Toley, 2005), which is also one of the most often used paradigms in public health research (Ullin, et. al., 2005). The hermeneutic paradigm can be defined by the assumption that "the social world is constructed of symbolic meaning observable in human acts, interactions, and language. Reality is subjective as seen from different perspectives (Ullin, et. al, 2005)".

The social context of participants helps to shape meanings, which are derived from the key concepts of perceptions, experiences, and behaviors. The interpretivist paradigm served as the philosophical grounding for this ethnographic study with a realist lens. The realist lens provides an objective account of the situation in the third person point of view, without judgment or bias from the PI (Creswell, 2000). This stance was determined to be the most appropriate to the situation of prenatal care in St. Kitts, as opposed to a more feminist approach, because the PI had little information on which to base advocacy or value-laden ideas about issues such as power, disempowerment, dominance, and/or repression as in the case of an ethnographic study with a critical lens. (Ibid.).

Ethnomethodology

Qualitative nursing research methods have historically been informed by a variety of disciplines (Cohen et. al, 2000), one of which is the field of anthropology. The purpose of anthropology is to 'produce generalizing descriptions of human social life in particular settings based…on first-hand observation of them by the author' (Rumsey, 2004, p.268). Traditionally, anthropologists focus on small, well-delineated communities of people with similar culture (Rumsey, 2004). This method, known as *ethnography*, has been defined as a focus on the contextual features of a phenomenon, making use of tropes and vivid description to interpret shared patterns of beliefs and behaviors, such as was needed for this study. (Creswell, 2007; Rumsey, 2004).

Ethnographic research methods were originally detailed by anthropologists Geertz (1973), Charles Briggs (1986), James Clifford (1986) and George Marcus (1986). Classic ethnographies that provide foundation for this study include Radcliffe-Brown's (1913) *Three Tribes of Western Australia,* Evans-Pritchard's (1940) *The Nuer*, and Tsing's (1993) *In the*

Realm of the Diamond Queen. These works represent the range of ways that ethnographic data has been historically collected and described, and provide insight into the subsequent pluralistic approaches for qualitative nursing research (Creswell, 2007).

These methods have been further developed by researchers such as Agar (1973), Meuke (1994), and Boyle (1994). Knowledge, beliefs, and norms are embedded in culture and thus best understood from an outsider (etic) seeking the insider perspective because the outsider is not embedded and thus able to see the larger picture (Richards & Morse, 2007). However, Boyle describes ethnography as presented from the emic perspective and as contextual, holistic, and reflexive (Boyle, 1994). Taken together, knowledge, beliefs, and norms should be presented by an individual within the culture (insider) to an un-embedded researcher (outsider) who can disengage and reflect during data analysis to present the clearest picture of the situation.

Sandelowski (2000) argues that a very similar method, *qualitative description,* using low-inference interpretation to present data using straightforward language is a valid, useful method of inquiry for nursing researchers (Sandelowski, 2000;Sullivan-Boylai et al, 2005). There appear to be distinct overlaps between focused ethnographic research (field of anthropology) and qualitative descriptive research (field of nursing). Sandelowski posits that the qualitative descriptive method is a pragmatic answer to understanding the cultural-context of a phenomenon, while maintaining the vision of timely translation into action for better health. This approach places emphasis on understanding experiences in a particular context by gathering data from a variety of sources (interviews, focus groups, health records, observations) while focusing on descriptive and interpretive validity (Sandelowski, 2000; Sullivan-Boylai et. al, 2005). For the purposes of this study, there is a distinct overlap between these two methods and they have been combined.

In the nursing research literature, several studies using qualitative descriptive methods have been successful in addressing health disparities (Baldwin, et. al, 1999; Brown & Jemmott, 2002; Boyer et. al, 2000; Scharer, 2002; Tarrant & Gregory, 2003). One study, which explored Hmong women's concerns about pregnancy and childbirth, documented culturally influenced issues of birth control and fear of miscarriage (Jambunathan & Stewart, 1995) and these findings supported continuing education programs for health workers. Other successful studies that support focused ethnographic methods in Caribbean populations include a study of motherhood in Barbados (Sutton, 1998) and a multi-site study of successful woman in the Caribbean, including St. Kitts (Haniff, 1985). These examples document the utility of using qualitative descriptive (focused ethnographic) methods in that they successfully documented cultural aspects that framed the issue; they were able to elicit rich descriptions and suggestions from the people closest to the issue; and, many were used as initial studies to provide a foundation for future pilot interventions (Haniff, 1985; Sullivan-Bolyai et. al, 2005; Sutton, 1998).

Design

As aforementioned, a *focused ethnographic* design with a realist lens was used for this study. A *focused ethnography* provides the means to explore cultural groups and specific topics within the cultural context from the emic perspective (Richards & Morse, 2007) (Boyle, 1994) (Meuke, 1994). A focused ethnographic method was best suited for this study because, at its core, this method's goal is to present research findings in easily-understood language that can be quickly translated into action to address health issues, particularly in vulnerable populations (Sullivan-Bolyai, 2005). Finally, given the Ministry of Health's intention to use these findings to tailor services to this population, data regarding patterned behaviors and values about prenatal

care, from the individual and environmental contexts, provides clear descriptions of the factors that promote or inhibit access and use of free medical services. (Sullivan-Boylai et al, 2005). This is explored in the context of healthcare seeking (or non-seeking) behaviors of pregnant and postpartum women.

Key elements of ethnographic nursing research include: study in a natural setting, the researcher as the key instrument, multiple sources of data, inductive data analysis, participant's meanings, an emergent design, a theoretical lens, interpretive inquiry, and a holistic account (Creswell, 2007). Table (#) provides examples of how this study adhered to the tenets of ethnographic nursing research to promote rigor.

Table 1. Ethnographic Nursing Research Tenets with Examples

Ethnographic Nursing Research Tenet	Example from this Study
Researcher as Key Instrument	The PI personally conducted interviews and observations
Multiple Sources of Data	Interviews with Women Interviews with Policy Makers and Nurses Observations of Clinical Settings
Inductive Data Analysis	Use of theoretical and open coding during transcript analysis to discover patterns and interrelationships in the data
Participant's Meanings	Presentation of the participants' voices through analysis of strips
An Emergent Design	Open Coding
Theoretical Lens	Realism
Interpretive Inquiry	Findings presented as women's interpretations of their experiences
Holistic Account	Interviews covered a broad range of questions pertaining to pregnancy and prenatal care; observations

Typically, a formative phase to first understand the needs and meta-communicative styles of the chosen population (Briggs, 1987; Ulin et. al, 2005) is conducted. The author gained expertise through visits to St. Kitts and Nevis for other purposes prior to engaging participants in this study. Elements of fieldwork include extended observations of a study group, immersion into the culture and daily lives of participants, and researcher reflexivity. Extended observations were conducted during the aforementioned visits, as well as through direct observation of prenatal care at four community health clinics (two in St. Kitts and two in Nevis). Cultural immersion occurred during the month-long visit for data collection via engagement with locals at festivals, farmer's markets, shopping areas, and local social scenes. Researcher reflexivity was addressed through daily reflexive journaling. Methods of data collection can include in-depth interviews, focus groups, participant observations, and case histories (Creswell, 2003; Ulin et. al, 2005; Cohen et al, 2000). Finally, data analysis is an inductive, interpretive process that allows the researcher to provide a written account of how a culture-sharing group operates (Creswell, 2003). Strategies for analyzing interview transcripts included theoretical and open coding.

Setting, Sample(s), and Procedures

The aims of this study were to describe the experience of prenatal care from the perspective of the women, providers, and policy makers in St. Kitts and Nevis. These aims were accomplished by conducting interviews with women about their experiences with pregnancy and prenatal care in St. Kitts and Nevis; conducting interviews with healthcare providers about policies, procedures, and experiences providing care to pregnant women; and, observing the culture of prenatal care in health centers.

The study took place on the islands of St. Kitts and Nevis. The PI traveled to St. Kitts and Nevis for an initial data collection period of one month, from June 4, 2012 through July 3, 2012. One follow-up trip was tentatively planned as an additional data collection trip in the event the PI could not obtain richness in the data during the first trip. This additional data collection trip was deemed unnecessary by the analysis team based upon the amount of data obtained during the initial trip. A follow-up trip was conducted in January, 2013 for five days in order to present preliminary findings to the St. Kitts and Nevis Ministry of Health (within 6 months of data collection as planned).

A Trac phone with a local (St. Kitts) phone number was purchased in country. Recruitment flyers targeted to women who were currently pregnant or recently pregnant were placed in the Women's Center unit at JNF hospital, churches, parks, four community health centers, a Nevis obstetrician's office, and other public locations including the public produce market in Basseterre, the ferry dock in Basseterre, the Circus (clock tower at city center), and the ferry dock in Nevis. Additionally, the PI, a team of five undergraduates, and a faculty advisor distributed flyers to female and male passersby, with instructions to pass the information along to friends, family, and coworkers who they felt might meet the study criteria. The flyer (see Appendix E) briefly described the study and encouraged any woman who met the inclusion criteria to call the PI at the local phone number for more information.

When a potential participant contacted the PI, a brief description of the study was provided along with inclusion and exclusion criteria. The woman was then asked if she met the criteria, and if so, the PI requested a mutually agreeable place, date, and time for a in-person meeting. Fifteen participants (n=15) were enrolled serially and interviewed based upon scheduling of a mutually convenient time. Hence, some women who contacted the PI during the

first week were not interviewed until the second or third week of the study due to scheduling conflicts. Some women were enrolled and interviewed on the same day. At the meeting, the PI first described (and in two cases, read) the consent form and asked if the participant still wished to participate.. In all cases where the participant agreed to the terms of the consent form, the interview commenced immediately.

If a woman did not meet the eligibility criteria or she did not consent to the study, she was thanked for her time and encouraged to give the PIs contact information to any woman who she knows that may meet the inclusion criteria for the study. One potential participant declined to participate after reviewing the consent form, and two other participants were found to be under-age during the consent process. These three women were not included in the study.

The PI developed a one-page, seven-item, multiple-choice and short answer Demographics Form (DF). The form was used to gather demographic data (including parity, years of schooling, annual income, number of people in household, racial/ethnic affiliation, and insurance status). This form was used only for Aim 1 participants (interviews with women). Completion time was 5 minutes by the participant.

The PI also developed three different Narrative Interview Guides (IG) to use during individual interviews.. The guides included an introduction and brief description of the project, followed by the overarching question for collecting this narrative data plus additional probe questions and space for handwritten notes.

Interviews were planned to occur at any safe, quiet, confidential place of the participants choosing and could have included the participant's home, a conference room at the PI's accommodations, a church meeting room, or other locations as determined in the field. Of note, because a majority of the women were working, and many lived in rural areas of the country, a

majority of the interviews (except for one) took place in town in public areas that were quiet and private. Most of the women who were interviewed did not have private offices because they worked as housekeepers, cooks, or were on maternity leave. As a result, many of the women scheduled their interview during their lunch break or in the evening after work.

Four interviews were conducted in a private room within the Sandy Point Community Center in St. Kitts, located in a rural parish about 30 minutes from downtown Basseterre. A community center nurse recruited participants who were interviewed at this community health center during the Antenatal Care Clinic. All interviews lasted between 20 minutes and one hour, depending on the participant's availability. Specific procedures linked to the research aims are below.

Interviews with Pregnant and Postpartum Women

Sample. Interviews were conducted with women (n=15) who were currently pregnant or within one year postpartum to elicit information regarding barriers to service use. The initial target sample size of n=10 was chosen based upon type of qualitative design and length of time in the field. However, the overwhelming positive response from eligible women willing to participate allowed for the expansion of the goal sample. Expanding the sample size allowed for an increased richness of the data (Sandelowski, 1995).

Inclusion criteria for the interviews were the following: women between 18 and 35 years old; women who were primiparous or multiparous; women between the third trimester to one year postpartum; women who either received prenatal care, or did not receive prenatal care; and, women who delivered or will deliver at the public hospital. Exclusion criteria for the interviews with women were the following: woman younger than 18 or older than 35; women in their first or second trimester of pregnancy; and, women who had not been pregnant within the past year

Rationale for exclusion criteria were: the potential for differing needs of young pregnant teens and women of advanced maternal age; women in their third trimester would have more opportunity to attend prenatal care appointments than women in the first and second trimester. Additionally, if women in their first or second trimester were interviewed, they could actually be convinced to start attending prenatal care appointments based upon contact with the PI; and, the possibility that women who delivered over one year ago may have had a different experience based on time differences.

Procedures. Women were recruited using a combination of sampling techniques including convenience sampling, opportunistic sampling, and snowball sampling (Creswell, p.127, 2000). The PI distributed and posted recruitment flyers at public locations such as churches, parks, and other public locations. As noted earlier, referrals also came through contact with health providers at JNF Hospital and the Community Health Centers, and through word of mouth from participants. The PI took advantage of new leads for potential participants while in the field, particularly with the distribution of recruitment flyers. During the interview appointment, informed consent was conducted and a brief Demographics Form (see Appendix E) was collected for demographic descriptors of the study population. A face-to-face semi-structured interview was conducted using the Interview Guide (see Appendix E) and lasted between 20 minutes to one hour. Data was collected via digital recording during each interview, field notes kept by the PI during each interview, and a daily journal for analytic memos (Saldana, 2013). Study forms and notes for each participant were coded with an assigned study ID. At the conclusion of the interview, the woman was offered a small token of appreciation in the form of either $20.00 US cash or the equivalent in East Caribbean Dollars, and was asked to contact the PI should she want to discuss anything further.

Interviews with Providers and Policy Makers

Sample. Interviews with medical professionals (n=6) were conducted to better understand the health system, policies, and provider perspectives of prenatal care utilization in St. Kitts and Nevis The initial goal was to interview: the Chief Medical Officer of the Ministry of Health; the Head Pediatrician of the Ministry of Health; the hospital Matron; and, 3-4 nurses within the community health centers to ascertain the services provided, further understand the scope of the issue from the provider perspective, and obtain their opinions regarding the lack of service utilization.

Although the initial goal of n=5-7 medical professional interviews was met, the goal of interviewing 3-4 community center staff nurses within the overall medical professional sample was not. Largely due to scheduling difficulties (nurses who were unwilling to be interviewed during work hours and unavailable before/after work), no formal interviews of community center staff nurses could be conducted. However, three JNF hospital nurses and one community health nurse in a leadership position on Nevis were interviewed.

Officials. Interviews (n=2) with a health system official and a physician were conducted at the convenience of the interviewee based upon a set appointment time. Because data collected from these interviews pertained to organizational resources, climate, and strategic planning, they were conducted in semi-private or private locations such as the professional's office or a conference room within the center or hospital. At the appointment, the PI explained the purpose of the study and obtained consent from the participant. Data was collected via tape recording, handwritten field notes, and a daily analytic memo journal.

Nurses. The PI visited four community health centers over the course of the study, and asked nurses who were present if they were willing to participate in the study. Nurses were

asked if they were willing to participate during scheduled site visits to community health centers and a mutually agreeable appointment date, time, and location for the interview was to be set. The intent was to speak with nurses about their roles, responsibilities, resources, and support regarding prenatal care and child health clinics As previously noted, the original goal of 3-4 interviews with community center general nursing staff was not reached as no general staff nurses consented to participate.

Procedures.

Officials. After informed consent was obtained, data was collected via digital recording during each interview, field notes kept by the PI during each interview, and a daily analytic memo journal for theoretical notes. Interview questions included but were not limited to: "What is the Ministry of Health's strategic plan regarding maternal-child health for the next 5-10 years?" "What do you believe are barriers and facilitators to full use of prenatal care services?" "From your perspective, what would need to occur to improve maternal-child health in St. Kitts?" Additional probes for interviews with medical professionals are included in the Interview Guide in Appendix E.

Nurses. After obtaining informed consent, the PI interviewed four nurses about their roles, responsibilities, resources, and support regarding prenatal care and child health clinics. Nurses in St. Kitts and Nevis are employed in various venues as general staff or nursing leaders in the primary hospital; or, as general staff or nursing leaders in the community health centers. The PI approached community center nurses in general staff roles at four community health centers, community center nurses in leadership roles, and nursing leaders in the hospital. Data was collected via digital recording during each, field notes kept by the PI during each interview, and a daily analytic memo journal. Sample interview questions included: "What kinds of

services do you provide to pregnant women?" "What do you feel are the biggest challenges you face in providing care to pregnant women?" "What is the community nurses' role in providing care to pregnant women?" Additional interview probes are included in Appendix E.

Observations

Observations were conducted in four community health centers representing four different parishes (communities). These community centers were: Sandy Point Community Health Center in St. Kitts (rural); Basseterre Community Health Center in St. Kitts (urban); Brown Hill Community Health Center in Nevis (rural); and Charlestown Community Health Center in Nevis (urban). The PI initially planned to spend two to three days per week, for three weeks, observing nursing care activities at community health centers. However, once on site, specific observation times and locations were scheduled based upon approval from the Head Nurses of Community Clinics in St. Kitts and in Nevis during initial in-person meetings. These sites were chosen based on the schedule of Antenatal Care Clinics, which occurred twice a month on either Monday or Tuesday from 8:00 am to 12:00 pm. The initial allocation of observation time was reduced based on the limited dates and times of the antenatal care clinics. Twenty hours of observation were conducted: four hours of data were collected at each of the aforementioned centers by the PI, with an additional four hours of observational data provided by undergraduate research associates who accompanied the PI to the Sandy Point Center in St. Kitts. Data was collected via handwritten field notes, photographs of the physical space and supplies, and a daily analytic memo journal.

Data Collection Protocol

Human Subject Committee approval was obtained from the University of Virginia Internal Review Board (IRB) and the St. Kitts Ministry of Health prior to study inception. The PI traveled to St. Kitts and first met with key contacts and consultants to review the study procedures and obtain approval to commence the study. This included a review of the study purpose, procedures, and recruitment plan. Upon receiving a phone call from a potential participant, the PI provided further explanation of the study purpose, procedures, and inclusion/exclusion criteria. The participant was asked if she would still like to participate and if she met the study criteria. If not, the participant was thanked for her time and encouraged to pass along the information to friends and family who might be interested. If so, an interview time and location was scheduled.

At the commencement of any interview, which includes participants from Aim 1 and Aim 2, the PI followed this step-by-step procedure:

1. Explained the study and obtained informed consent.
2. Assigned the enrolled participant a four-digit identification number to be used in linking the consent document and participant contact information with interview notes and transcripts.
3. Explained to the participant that the following interview would be recorded to ensure note-taking accuracy and for reference by the PI only, but that if there were sections of the interview which s/he wishes not to have recorded, the PI would stop the recording and collect only field notes during those segments. The PI also discussed with the participant that if s/he wished to discontinue or postpone the interview, s/he could do so at any time.

4. Reminded the participant that, since protecting their confidentiality is of utmost importance, it would be best to refrain from using proper names during recording. Should a proper name be used, it would not be able to be deleted from the recording but would be omitted from the transcripts and field notes. Explained that proper names would not be used when reporting findings to the Ministry of Health or in manuscripts.
5. Recording commenced using a digital recorder and external microphone.
6. Recited the study number, date, time, and location of interview including the PIs full name and a statement that consent had been obtained from participant (#) for this interview.
7. Followed Narrative Interview Guide specific to the participant's group (woman, nurse, or policy maker)(See Appendix E)
8. Recorded field notes via pen and paper, using question probes to obtain additional information.
9. Concluded each interview by encouraging participants to follow-up with PI should s/he have any questions or additional information they would like to provide.
10. Provided direct compensation to pregnant/postpartum participants in cash.

Trustworthiness/Rigor

Lincoln and Guba posit that trustworthiness can be established using techniques to show credibility, transferability, dependability, and confirmability of the research (1985). These methods of establishing trustworthiness will be followed for this research. To address credibility, the PI has had prolonged engagement with Ministry of Health officials and providers over the course of two years via phone and email, and observation in the field (St. Kitts) for an

initial one week needs assessment (occurred in January 2011) followed by a cultural immersion period of four weeks. Triangulation and peer debriefing using a team approach to analysis has enhanced credibility of findings. To address transferability, rich descriptions of people, places, and processes have been provided and a final comparison of these findings to those previously discussed in the literature was conducted. Reflexivity in the form of a nightly research journal kept by the PI and triangulation with a team approach established confirmability.

Creswell posits that rigor can be established in qualitative studies in one of two ways: either through extensive data collection in the field or through conducting multiple levels of data analysis (Creswell, p. 46, 2000). Creswell also points out that rigor is increased when the researcher validates the accuracy of analysis through triangulation, peer auditing, or member-checking (Ibid.) Though there was limited time available for extensive data collection, this study established rigor through multiple levels of data analysis, triangulation, and peer auditing as described above.

Potential Limitations

Potential limitations for this study included the following: 1) selection bias, 2) scheduling limitations, 3) censorship during interviews, and 4) obtaining controversial data.

Selection bias was a potential limitation of the study since the mothers who chose to participate may have represented a certain subset of the population, and the setting was limited to one hospital on St. Kitts and ¼ of the community centers. The strategy to overcome potential selection bias was to place recruitment flyers in at least ½ of the communities in St. Kitts and Nevis to cast a wider net and attract a variety of potential participants.

The convenience sample of medical professionals, based upon their individual schedules, may have presented a limitation in the form of interviewer bias. Interviewing the women before

the medical professionals could have limited interviewer bias from preconceived notions, however arranging this was not possible due to limited time in the field, in-country scheduling of interviews with women, and the convenience sample of medical professionals based upon their individual schedules. Additional methods for bias control are further discussed in the paragraph on Trustworthiness.

Interviewees may have censored their opinions during tape-recording of interviews out of fear of a confidentiality breach, especially if their opinions were unfavorable towards the Ministry of Health. Strategies to address confidentiality included not recording the informed consent process (since proper names were used), using an alias during the interview process, and using a study identification number to connect study documents instead of formal names.

Finally, there was a possibility that the information gained during interviews about prenatal care in St. Kitts and Nevis might be controversial to the Ministry of Health. Strategies to address this limitation included obtaining approval of the full research plan from the Ministry of Health, and reviewing the study purpose, methods, and analysis with Ministry of Health officials one week prior to study inception.

CHAPTER FOUR: ANALYSIS

Introduction

The PI conducted interviews with 15 pregnant or postpartum women. Interview lengths varied between 20 minutes and one hour in length, based upon the participant's availability. An additional 6 medical care providers were interviewed, with interviews ranging between 20 minutes and one hour in length, again depending upon the participant's availability. Eighteen hours of field observations in community health centers were documented.

Quantitative demographic data was entered into excel spreadsheets and analyzed using Statistical Package for Social Sciences (SPSS). Descriptive statistical analysis of the study population includes subgroup sample sizes, measures of central tendency, and standard deviation (see Table 2).

A demographics form was collected only for Aim 1, interviews with pregnant and postpartum women. The demographics form (See Appendix E.2) contained questions pertaining to marital status, highest level of school completion, income, household size, race, number of children, ages of other children, history of prenatal visits (including current and past pregnancies), delivery location, current pregnancy status, gestation of current pregnancy, and insurance status. A select group of variables are presented in Table 2. Although data regarding age of participants might have been useful, the PI was not granted approval to collect this data by the Ministry of Health. This was due to concerns that data regarding participant's age may inadvertently identify certain participants, relative to the small size of the communities. Because there is a small population of healthcare providers in St. Kitts and Nevis, demographic data was also not collected on these participants to prevent risks to confidentiality.

Table 2. Sample Demographics-Pregnant/Postpartum Women (n=15)

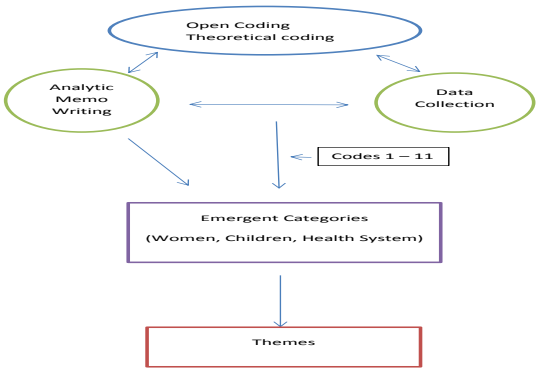
Variable	**N (%)**
Race	
Black	14 (93%)
Other	1 (7%)
Marital Status	
Single	11 (73%)
Married	3 (20%)
Living w/Partner	1 (7%)
Insurance Status	
Uninsured	8 (53%)
Insured	7 (47%)
Currently Pregnant	
Yes	7 (47%)
No	8 (53%)
Has Other Children	
Yes	14 (93%)
No	1 (7%)
Obtained PNC in Past	
Yes-4 or more visits	12 (80%)
No	1 (7%)
No Answer	2 (13%)
Delivery Location	
Hospital	15 (100%)
Highest Level of Education	
Less than High School	1 (7%)
Completed High School	8 (53%)
Trade/Certificate/Comm. College	2 (13%)
Associate's or Bachelor's Degree	3 (20%)
Master's Degree	1 (7%)
Income	
< $20,000 ECD	3 (20%)
$20,000-$60,000 ECD	5 (33%)
$60,000-100,000 or more ECD	5 (33%)
No Answer	2 (13%)
Variable	**Mean (SD)**
Average Household Size	4.06 (1.43)

The sample of participants for interviews with pregnant and postpartum women consisted of mostly black (93%), single mothers (73%), who had completed at least high school (53%). Two participants (17%) completed additional trade, certificate, or community college education, with an additional four participants (27%) completing Associate's, Bachelor's, or Master's level education. Approximately ½ of participants were pregnant at the time of interviews (53%) and ½ maintained private health insurance (47%). A vast majority (n=12) of women reported having at least four prenatal care visits, which met the World Health Organization's minimum standard of care, during previous pregnancies and all participants (100%) reported having delivered previous pregnancies at a hospital. No home deliveries were reported. Finally, the average household size was 4.06 (1.43) people with 66% of women earning between $20,000-$100,000 ECD (~$7,400-37,000 US) annually.

Interview transcripts from Aim 1 and Aim 2 were analyzed using qualitative methods, and observational data from Aim 3 served as the contextual framework for understanding and analyzing women's experiences of pregnancy. Provider interview and observational data were used to support or refute themes from the interviews with women.

Analytical Process

Figure 4: Analytical Process



See Figure 4. Qualitative data analysis proceeded in the following step-wise manner using the Hermeneutic circle (Cohen, Kahn, & Steeves, 2000). Following Kockelmans' Canons, interview data, for Aim 1 and Aim 2 were analyzed using these specific techniques:

1. Data from audio recordings were transcribed by a professional transcription service.

2. Written data were read thoroughly by the PI for data immersion prior to coding.

3. Interviews with Women (Aim 1) were analyzed first because this was the specific unit of analysis for this study. This allowed Interviews with Providers (Aim 2) and Observational Data (Aim 3) to serve as a contextual foundation for the data obtained from pregnant/postnatal women.

4. Preliminary codes were identified based on Anderson & Newman's (1973) framework for Societal, Individual, and System Factors Affecting Health Care Utilization.

5. Transcripts were analyzed three times. First, transcripts were analyzed individually to look for all codes within a single transcript. Second, transcripts were analyzed in aggregate to search for

each code separately. Finally, a third analysis served as reconciliation for the first two analyses.

6. Strips were identified based upon the initial codes using theoretical coding (Agar, 1983).

7. A master document containing the eight codes and strips from the third analysis was constructed. This was used to evaluated similarities and differences in individual responses, and to determine if additional codes or further condensing of the original codes was necessary.

8. Strips within each code were individually analyzed for thematic elements and labeled as sub-codes.

9. Clusters of sub-codes were developed within each code, again based upon thematic similarities.

10. Clusters were then compared across codes and further condensed to discover commonalities. The condensed clusters represented prevalent categories of data.

11. Categories were organized into themes

12. Themes were organized into an overall description of individual determinants of system utilization.

At each step of analysis, all of the data including written notes and transcripts were read so the PI remained immersed in the full-text. A team approach was used to establish trustworthiness of the analysis, in the form of monthly team meetings with dissertation chair Linda Bullock, PhD, RN, FAAN and qualitative methods specialist Jeanita W. Richardson, MEd, PhD. The team collaborated on the iterative process of coding, condensing codes, using a theoretical framework for guidance, and general progress. The emergent themes and overall description were compared to themes that have been previously identified in the literature regarding barriers to obtaining prenatal care. The emergent themes describe the experience of prenatal care in St. Kitts and Nevis from the perspectives of pregnant and postnatal women, with

the perspectives of providers serving as contextual data. These themes also document perceived barriers and facilitators to full use of free community services. Discrepancies in perceptions between providers and women are also discussed. Finally, participants and providers validated emergent themes at a January 9, 2013 site presentation at Joseph N. France Hospital in St. Kitts. The PI presented quotes and categories to the Kittitian participants, nurses, and physicians using a preliminary report of findings.

Coding Process

After all interviews were transcribed, transcript analysis was conducted using theoretical and open coding. These approaches are defined based on prevailing literature, and discussed in terms of how each method was used for this analysis.

Theoretical Coding

Glaser defines theoretical coding as the process of analyzing "how the substantive codes may relate to each other as hypotheses to be integrated into a theory" (1975). Theoretical coding succeeds the development of a theory, either during axial coding or from a theory selected from the literature. Theoretical coding is considered to be a sophisticated method of data analysis that can add precision and clarity to the process, and aid in making the analysis coherent and comprehensible (Charmaz, 2006). This type of coding is integrative: it brings together and incorporates parts into the whole. Theoretical coding moves substantive codes towards a more coherent analysis by delineating possible relationships between categories.

For this study, a health service utilization model was chosen as the research conceptual model. This type of model was chosen, as opposed to a strictly behavioral model, because the PI did not have enough information to base issues of underutilization solely on maternal behavior. The utilization model encompasses multiple facets of service utilization, including the health

system, society, and the individual. This model served as a guiding framework, while in the field and during data analysis, to ensure that data were gathered and analyzed from various societal, individual, and system perspectives for comprehensiveness. Details of the research conceptual model have been previously presented in Chapter 2. See Table 4 below.

Analysis of qualitative data is an iterative process; hence guidance from this model was also flexible and adaptive. This adapted model served as a guide during data analysis to provide some structure to the initial analytical process. After an initial reading of all the transcripts, certain constructs within this model were chosen as a basis for analysis depending upon their presence in the data. As analysis proceeded, constructs (codes) were dropped or added based upon their utility. This process is known as open coding.

Open Coding

Strauss and Corbin (1998) define open coding as the process of breaking down the data into discrete parts, then closely examining it for similarities and differences. This type of coding is conducted by first "opening up the text and exposing the thoughts, ideas, and meanings contain therein". The purpose of open coding is to develop more abstract categories from conceptually similar events, interactions, or objects. Sections of data from transcripts are read and re-read for immersion to identify one or multiple key concepts. Concepts are collected in a separate list that expands as more of the text is analyzed (Bradley, Curry, & Devers, 2007).

For this analysis, open coding was used concurrently with theoretical coding. The initial coding of transcripts was based upon the aforementioned theoretical coding process. Using theoretical coding as the initial step provided structure and foundation for beginning the analysis process. Data strips were coded based upon codes derived from the theoretical model as well as open coding. See Table 3. Each code, along with its corresponding list of strips, was further

coded openly to derive sub-codes and data clusters. Categories and themes were then derived using an open coding process.

Emergent Codes

Table 3. Preliminary Codes with Type and Source

Code	Type of Coding	Source of Code
Values Concerning Health and Illness	Theoretical	Individual Determinant-Predisposing
Attitudes Towards Health Services	Theoretical	Individual Determinant-Predisposing
Knowledge About Disease (Pregnancy)	Theoretical	Individual Determinant-Predisposing
Price of Health Services	Theoretical	Individual Determinant-Enabling
Perceived General Health[1]	Theoretical	Individual Determinant-Illness Level
Perceived Symptoms[1]	Theoretical	Individual Determinant-Illness Level
Perceived Diagnosis[1]	Theoretical	Individual Determinant-Illness Level
Evaluated Symptoms[2]	Theoretical	Individual Determinant-Illness Level
Evaluated Diagnosis[2]	Theoretical	Individual Determinant-Illness Level
Social Support	Open	PI Knowledge of Transcript Data
Societal Norms related to Health and Illness	Open	PI Knowledge of Transcript Data

1 This code subsequently condensed into "Perceived Pregnancy Course"

2 This code subsequently condensed into "Evaluated Pregnancy Course".

Nine preliminary codes were selected from the *Individual Determinants* construct of the theoretical model to establish footing for the early stages of this analysis (see Table #). These codes were specifically chosen from the *Individual Determinants* construct in the theoretical model because most of the data came directly from women, who were the intended unit of analysis for this study. The additional codes within the *Individual Determinants* construct were

not chosen because either the specific type of data was obtained on a Demographics Form (e.g. marital status, education) or they were determined not to be culturally applicable for this population (e.g. access to regular sources of care). Two additional codes were chosen, using open coding, based upon the PI's knowledge of what was contained in the data. These codes reflect answers to interview questions about social support and societal traditions surrounding health. Each of the following initial codes were assigned a different highlighter color:

1. Values Concerning Health and Illness
2. Attitudes toward Health Services
3. Knowledge about Disease
4. Price of Health Services
5. Perceived General Health
6. Perceived Symptoms
7. Perceived Diagnosis
8. Evaluated Symptoms
9. Evaluated Diagnosis
10. Social Support
11. Societal Norms related to Health and Illness

Each transcript was reviewed three times for the initial codes, using colored highlighters to demarcate specific codes. During analysis, vague differences were noted between codes six through ten, and these four codes were condensed into two codes under the adapted construct of *Pregnancy Course*: Perceived general state, perceived symptoms, and perceived diagnosis were condensed into Code 5: Perceptions of Pregnancy Course. Evaluated symptoms and evaluated diagnosis were condensed into Code 6: Medical Evaluation during Pregnancy. This subsequently resulted in the following revised list of codes:

1. Values Concerning Health and Illness
2. Attitudes toward Health Services
3. Knowledge about Disease
4. Price of Health Services
5. Perceived Pregnancy Course
6. Evaluated Pregnancy Course
7. Social Support
8. Societal Norms related to Health and Illness

After all transcripts were coded using the revised list of codes, strips representing each code were placed in individual documents. Individual codes, and the resultant strips, were then analyzed individually. For instance, all forty strips listed under Code 1 were numbered sequentially, and labeled based on subject matter (e.g. finances, delivery, feeling healthy, exercise, etc.). The labels, or sub-codes, were then clustered and listed based on topical similarities. The number corresponding with each strip was then placed within a cluster based upon likeness. These sub-codes provided contextual support for deriving meaning from the interviewee's statements. Interview findings and observational data are hereafter presented in terms of the source of data.

Interviews with Pregnant and Postpartum Women

Interviews with pregnant and postpartum women were conducted to better understand their experiences, or lack thereof, of prenatal care, who are between the third trimester of pregnancy and one year postpartum. The following codes represent transcript data from interviews with pregnant and postpartum women. Instances where there are two speakers include a (P:) to indicate the participant is speaking and an (I:) to indicate the interviewer is speaking.

Code 1: Values Concerning Health and Illness. The term "value" is defined by Merriam Webster dictionary (2013) as the relative worth, utility, or importance of an item; or as a principle or quality that is intrinsically valuable or desirable. Hence, "values concerning health and illness" can be defined as the relative importance of a person's health to him/herself or as principles concerning health that are deemed desirable.

Values Concerning Health and Illness is a *Predisposing* characteristic of the individual determinants of health utilization (See Figure 2)(Andersen & Newman, 1973). As a theoretical variable, Andersen and Newman define values concerning health and illness as a belief variable that operationalizes a person's predisposition to use, or not use, health services. In other words, a person's beliefs, including their values about health and illness, predisposes him or her to obtaining medical care. If a person's values suggest that being healthy or avoiding illness is important, he or she is more likely to obtain care. This variable, which comes directly from the *Individual Determinants* construct of the theoretical model, has been labeled as *Code 1* for this analysis.

A total of forty strips were included under Code 1: Values Concerning Health and Illness, as they related to pregnancy. These forty strips were evaluated for commonalities and grouped into twenty-six sub-codes. The twenty-six sub-codes were then clustered based upon commonalities, with the most common sub-codes pertaining to the value women placed on their personal well-being, the value they placed on the health of their child, and the value of their relationship with providers.

Strips containing discussions about what a participant believed to be important, valuable, or of relative worth, as per the aforementioned definition, were included under this code. Strips are included in the dialect of the women, providing some evidence of the importance Briggs (1987) placed on spending the time required for ethnographic research to learn linguistic nuances.

As evidenced by what many of the women discussed during the interviews, a sense of holistic well being during pregnancy was highly valued. A sense of holistic well being is herein defined by the woman's feelings of spiritual, emotional, and physical wellness as demonstrated

via sub-codes about feeling protected spiritually, being emotionally ready to care for her child, and being physically healthy. Women also placed a high importance on having a healthy and happy child. This was evidenced by sub-codes that pertained to having healthy children and ensuring that the fetus was satisfied with the mother's physical and spiritual behaviors. Finally, women asserted the importance of their relationship with health care providers through explanations about speedy service during appointments or delivery, and confidentiality of personal health matters.

Evidence of the value women place on spiritual well-being is elucidated in the following quote from one woman who explained that during her pregnancy, she used prayer as a form of protection from complications during pregnancy and delivery:

> *Oh yeah. I just pray. I just pray and say, um, I want to get to the safe [time]. Sometime I gotta pray no…I just pray, I just pray.*

This is an example of women's values concerning health and illness in that this participant connected her spirituality with her personal wellbeing, and valued prayer as a mechanism to influence her health.

Women also placed importance on emotional health during pregnancy and postpartum. A participant who expressed her satisfaction with the care she received at Joseph N. France hospital after delivering her child evidences this, as she desired to feel rested before tending to her newborn:

> *And I got to rest everything-they don't shove no child on me and all of that.*

This participant went on to explain that she wanted to feel rested and prepared to provide good care to her newborn, and she valued that the nurses allowed her time to recuperate so she could fully focus on her child.

The following quote demonstrates the value women placed on physical well being during pregnancy. This participant was discussing general laboratory tests during prenatal visits, and explained why she decided to take the suggested HIV tests during her pregnancies:

> *Because I think, what harm can it do me? Ya know…I…I always say to my husband "listen, when I got into this marriage, I was HIV negative. So my thing is if you want to go out, what you need to do is let me know and then I decide whether or not I want to be with you, or you use protection.*

This participant believed her physical well-being to be of importance when she decided to submit to the optional lab testing to determine her own HIV status, as well as when she discussed testing for, and sexual safety with, her husband.

Another cluster under values concerning health and illness pertained to the women's desires for a healthy, happy child. Fetal happiness and health is defined by the myriad of activities the women engaged in, which they believed would be acceptable or unacceptable to the unborn child. This was evidenced by sub-codes that pertained to having healthy children and ensuring that the fetus was satisfied with the mother's physical and spiritual behaviors.

For instance, one participant explained the variety of food and beverages that she consumed during pregnancy. Certain foods would make her feel sick, while others did not negatively affect her. She explained that she became sick after having 'drink' (a cold beverage made from local fruit) because she believed that it was something that the baby did not want. She believed that the baby preferred a warm beverage (tea). This belief incorporated the

assumption that the baby has specific desires regarding what s/he would like the mother to consume, and if the baby was dissatisfied, the mother would become nauseated and vomit:

> *Yeah, because a morning, I wake up and I make some drink and I go eat, bread and egg- and come back up. Didn't want the drink. So then when I finish I went go make some tea now. And I drink and it and that's done. But, he [the baby] didn't want a drink. So I went and I do a next egg…eat piece my bread, and I make some tea. So when I drink the tea and I eat, it stay down. So he want something warm, not cold.*

This statement provides evidence of the value women place on making the baby happy while in-utero. By moderating her own behaviors, the women can ensure that her baby is happy. Women also felt that the child's health was very important. As demonstrated in the following strip, this participant placed a high value on providing the necessary nutrition for her newborn through both breastfeeding and supplementation with milk formula. She explains that after delivery her newborn was not breastfeeding well, and she was concerned that her baby had not eaten in several hours and wished to supplement the feedings with formula:

> *Yes. It wasn't so much breastfeeding, but the fact that she was not breastfeeding properly, and I think that it is unfair to say breastfeeding only and no formula. I mean, on the fourth day, she cried from 12 to 6, 12 at night to 6. Luckily, I was the only one who was there. The nurses did come, but they keep telling you about breastfeeding and it wasn't until six in the morning that they decided that they were going to give her a little bit of formula, and so she hadn't eaten. She was crying during the day, too, but that was the longest period where she did not eat. I think it's unfair to say breastfeeding only. If you see a child that isn't breastfeeding properly, I think they should allow you to get formula.*

This woman placed a higher relative importance on her infant acquiring the necessary nutrition than the importance she placed on following the nurses' rules about breastfeeding. This demonstrates the value that women place on the health of their child.

Finally, women placed importance on the relationship that they had with their providers during pregnancy and postpartum. Much of what women valued about their interactions with providers is also demonstrated in Code 2: Attitudes towards Health Services. What the women felt was important in the patient/provider relationship was intimately connected with what they were satisfied, or dissatisfied, with in the patient/provider relationship.

For instance, women placed a high value on saving their own time and money, but they also felt that it was important to spend a satisfactory amount of time with a provider. The following quote is evidence of the value of time and money, as the participant explains that although she receives good care at the community health center, if she were seeing a private doctor instead of the community nurses, she could obtain care faster:

> *The care good to me down here [CHC]. The care makes a difference…But it's just that you see your private doctor faster.*

Another participant, who was discussing the delivery process, explained that when a woman chooses to obtain a private physician, she not only has to pay out of pocket, but she may also have to wait for the doctor to arrive when it's time to deliver. This is in contrast to the hospital staff midwives, who are available to attend deliveries free of charge, 24 hours a day:

> *So you have to wait and all that payment and whenever that doctor reach to the hospital. And that make no sense.*

This women did not understand the rationale behind paying for services, and misuse of her time when another option was available. This elucidates that women place importance on prompt service as one facet of their relationship with a provider.

Women also value confidentiality and personal privacy for health matters as another facet of the relationship they have with their provider. This was evidenced by several of the

participants discussing the difference between care at a community health center and at a private physician's office. One participant described her experience with the private physician as confidential, whereas she experienced gossip at the community health centers:

> *Yeah. When using a private doctor, everything is more confidential. When you use a public health center, the people sometimes bring a story out on the world. They tell us things and then the center sends. So, that's why I don't go to, um a clinic. I go to a private doctor.*

The value that this participant placed on her personal privacy informed her decision to use a private office as opposed to the community clinic, where she feared her information may be shared with others. The following strip demonstrates another example of the importance pregnant women place on confidentiality. This participant was asked whether supplies and personnel were available to obtain a fetal ultrasound at the community health center as well as the private physician's office. She stated that, while she could obtain an ultrasound at either location, her preference was for the private office, where the staff would not discuss her personal matters amongst themselves.

> *Yeah, the private doctor does it, but I wouldn't let them do it in the health center or the hospital do it. Why not? Because they just chat, chat, chat.*

Again, this woman's decision-making was informed by the value she placed on confidentiality of personal health information. She was able to maintain her personal privacy via a confidential relationship with her provider.

For Code 1: Values Concerning Health and Illness, there were a total of 40 strips that grouped into 26 sub-codes. The 26 sub-codes subsequently clustered into values pertaining to the women's holistic well-being, the importance women place on having a healthy/happy baby,

and the significance placed on personal privacy regarding health matters. These were the most common clusters of data representing what women believe to be intrinsically valuable or desirable about health and illness during pregnancy and postpartum.

Code 2: Attitudes Towards Health Services. Merriam Webster Dictionary (2013) defines the term "attitude" as a feeling, emotion, or mental position toward a fact or state. The World Health Organization defines "health services" as all services dealing with the diagnosis and treatment of disease, or the promotion, maintenance and restoration of health (2013). Hence, an attitude towards health services connotes a person's feelings, emotions, or mental position towards services dealing with disease diagnosis and treatment, health promotion, or health maintenance.

Attitudes Concerning Health Services is a *Predisposing* characteristic of individual determinants of health utilization (See Figure 2)(Andersen & Newman, 1973). Andersen and Newman define attitudes towards health services as a belief variable that operationalizes a person's use, or non-use, of medical services. A person's attitude about health services is a part of their intrinsic beliefs, which have the ability to predispose him or her to obtaining medical care. Hence, if a person's attitude towards a particular health care provider is negative, the person is less likely to access care from that particular provider. Alternatively, if a person has favorable attitudes towards the health system in general, s/he may be inclined to continue utilizing available services through a different provider. This variable, which comes directly from the *Individual Determinants* construct of the theoretical model, has been labeled as *Code 2* for this analysis. Strips containing information about how a person feels *towards* health services personnel, health facilities, health services, and the health system in general, as per the aforementioned definition, were included under this code.

There were a total of 67 strips were included under Code 2: Attitudes towards Health Services, representing the most robust code in terms of the focus of women's responses. These 67 strips were evaluated for common ideas and grouped into 42 sub-codes. The most common sub-codes pertained to a woman's attitudes regarding health care experiences she has had with providers; attitudes about the differing scope of practice, roles, and abilities of nurses versus physicians; and attitudes about health care experiences with the health system as a whole.

As substantiated by what many of the women discussed during interviews, patient-provider rapport was highly indicative of their intent to use, or not use, medical services. Women's feelings about their experiences with health care providers constituted a considerable portion of their overall attitudes towards health services. Patient-provider rapport is herein defined by the women's feelings about patient-provider communication, provider personality, trust, and confidentiality of medical information. Women's opinions about provider roles also influenced their attitudes towards health services. Sub-codes that pertained to physician supervision of nurses; education of the physician versus education of the nurse; nursing scope of practice; and, differing approaches to patient education evidenced this. Finally, women presented opinions about the health system, as a whole, through descriptions of their experiences with the availability or convenience of desired services; staffing and availability of providers; and, perceived differences between private and public health care.

Indication of women's feelings about patient-provider rapport is demonstrated in the following quote from one woman who described the perceived differences between the community health center and the private physician's office, stating that female providers at clinics often have intimate knowledge about pregnancy and are able to understand the pregnant patient's feelings:

> *I don't think there would be much of a difference, in uh…because some coworkers tell me…one of my coworkers had recently had a child, she said 'I prefer to go to the clinic because it's more personal. It's women who are dealing with me and women understand pregnancy. They are people who had pregnancy before so they deal with me a special touch.' Whereas on the other hand, I just felt like I should go to my own private, and my own private is a man. And whereas the clinics are all women, ya know? So that's the difference. They say they think women understand more what women go through than the man would.*

Because most of the providers at community health centers are female nurses, some pregnant women feel that this is the best place to obtain prenatal care. However, this participant's attitude was that she wished to maintain the established relationship with her private doctor, who happened to be a male.

Women also expressed their feelings about how the provider's personality influenced their health care experiences. This participant described an experience she had during her delivery at JNF Hospital.

> *When I reach up there was two nurse. One from (location) and one from over (location). And they work with me—nice, nice, nice. Two elderly nurse. I had no problem, no complication, nothing.*

Underlying this discussion about the welcoming personalities of her nurses is the idea that her delivery was a positive experience, partially attributable to the kindness of her medical care providers.

One of the most persuasive factors in women's decisions to seek care from a particular provider was the perceived reputation of the provider to maintain confidentiality. This was also evident in Code 1: Values Concerning Health and Illness, where women placed high importance on the patient-provider relationship. Women reported that they were much less likely to utilize services from providers who had a reputation of discussing personal medical matters with others. However, if she perceived that a provider would respect her confidentiality, she maintained a

more positive attitude towards health services, which influenced her decisions about seeking care from that provider.

For instance, one participant explained that, for her, the difference between obtaining care with a physician versus obtaining care with community center nurses was the level of privacy. She explains the breach of privacy that she experienced with patrons and providers at the community health center in her parish:

> *P: To me, the difference was the—with the doctor you are more secure. Whatever happens to you, you're more secure. And with the clinic it's like somebody else is there be comes up from your area, like you and they might not be getting on, so certain things I would actually bring all the time they work. I: So it's really about confidentiality? P: Yeah. I: They won't keep your business safe? P: Yep.*

It is not surprising that feelings about confidentiality within the patient-provider rapport was such a significant contributor towards women's attitudes about health services. As previously discussed in Chapter 2, St. Kitts and Nevis is a relatively small island. The Ministry of Health's goal to place medical facilities within walking distance of every home has tremendously increased access to care. Patrons who require medical attention are able to attend facilities quickly by foot or car. However, since most communities have access to their own community health centers, providers who work at those centers are often also residents of the same community. Patrons of community health centers within each neighborhood are often neighbors, friends, or family who wait for care in the same waiting room. This presents particular challenges for patients who place a high priority on confidentiality, as evidenced by the myriad of comments about providers who did, or did not, keep their information private.

Women's opinions about provider roles also influenced their attitudes towards health services. Women's discussions on physician supervision of nurses; education of the physician versus education of the nurse; nursing scope of practice; and, differing approaches to patient

education herein define attitudes about provider roles. Evidence of women's attitudes regarding provider roles are demonstrated in the following strips. For instance, one participant rebuffed the notion of having a nurse midwife, who would be supervised by a physician, attend her delivery:

> *I: How would you feel about it if you did have a nurse that was delivering you and she would only call the doctor if there was a problem? P: No..I wouldn't like that that's why you pay upfront before, to make sure that the doctor is there because you always want to know, in pregnancy is there anything. And I can tell you, my second delivery, it was not good.*

Another example of women's opinions about various providers and their roles was evident in participant's discussions about the provider's level of education. The following strip is from a participant who was describing the difference between community center care and private physician care:

> *The doctor is more, um, more educated than the nurse. More professional than the nurse them. And the doctor is this way and the nurse is this way. Yeah, the doctor more better to me.*

In this instance, provider education clearly influenced the participant's attitude towards medical care. This was evident in her opinion that, because the physician has more medical education than the nurse, she would receive better care with a physician.

The role of nurses and their scope of practice also elucidated certain attitudes regarding the health system. While some participants preferred private physician care, others preferred to be cared for by a nurse midwife during delivery unless impending emergency required the presence of the physician. This provides evidence that the scope of nursing practice, coupled with the availability of nurse midwives, influences women's attitudes about what constitutes a positive patient-provider relationship. In this strip, the participant discusses her preference for

allowing a nurse midwife to deliver her baby, because waiting for the physician to arrive at the hospital may put her in danger of delivery complications.

> *It's alright to me [CHC]. Better than paying your money to a private doctor, because if you reach up there at a certain time, they cannot touch until a private doctor come and sometime you go so much complication. It is better to be [seen by the nurses], do what they have to do, and if it's an emergency, that's when the doctor come in.*

Finally, participants' attitudes about the patient-provider rapport were also influenced by how much patient education was offered at each visit. Many women expressed their discontent about the perceived lack of prenatal care education provided by physicians in private offices, which was in contrast to the thorough education provided by community health center nurses. Although this participant chose to obtain care at a private office, she stated that she would attend CHC prenatal care education sessions during future pregnancies.

> *I didn't know the prenatal care is at the health centers until I was almost seven months, or sometime shortly after. I did not go to them, so no, didn't get that early benefit of the prenatal care so—but as soon as I found out, I made arrangements and I did go to the clinics. In comparison, to me, you get more information at the clinics.*

Underscoring this statement is the idea that participants have the option of two different points of care. They may choose private or public, but they also have the option to combine private physician visits with community center services. The private physician served her needs for medical care, but the community center served her needs for prenatal education.

The final cluster of sub-codes under Code 2: Attitudes Concerning Health Services pertained to the women's feelings about the health system overall. Attitudes towards the health system are defined by women's opinions on the availability or convenience of desired services; staffing and availability of providers; and, perceived differences between private and public health care. Women's opinions regarding the availability and convenience of desired services influenced their attitudes towards the health system. For instance, one participant described a

recent visit to her local community health center and unavailability of the Doppler monitor to check her baby's heart rate:

> *Well, at the health center—one of the health centers I went to, the nurse—her monitor wasn't working one day because a battery had died, and so she used this bell-shaped—to check for babies, you know, this bell-shaped thing. Yeah, it's some old thing they used to use back then. They put it here.*

This participant believed that certain equipment should have been available for her appointment, but due to equipment malfunction, the nurse used an older piece of equipment for the mother's check up. This influenced the woman's attitude about the health system, in that she believed she did not receive the highest quality of care during that particular appointment.

Staffing and provider availability also influenced women's attitudes about the health system as a whole. Women preferred the convenience of having a provider readily available, whether during prenatal appointments or during delivery. An example of this preference is evident in the following strip, where one participant describes her experience delivering her infant and the lack of nursing staff availability overnight:

> *The only other recommendation I would have is that I guess because of short staff, there wasn't somebody there with us in the night[at the hospital]. I mean, a person would come, the nurses would try to come and check and so on but they weren't there all the time, so when that pain hit on that first night, there were other persons in the room that had to go and try to search and…*

The short staffing on the obstetrics ward that she experienced influenced this participants' attitude towards the health system. Underlying this statement is the women's perceptions that a nurse was unavailable to provide them and their infants with the attentive care necessary after delivery. The newly postpartum women relied on each other to seek out the nurse to have their needs fulfilled. This subsequently affected the women's attitudes about the health system, because availability of providers was highly important to them.

Finally, women's perceptions about care received at a private office versus the community health center affected their attitudes towards health services. As aforementioned, pregnant women have the option of prenatal care at a private physicians office, prenatal care at the community health center, or a combination of the two services. As evidenced by the interviews, many women chose a provider based on personal finances despite their opinions about the care. However, others determined their preferred source of care based on previous experiences. The following strip provides evidence of one woman's attitude about the health system, and her decision-making when choosing a provider:

> *I: And what, what, um, made you decide to choose the doctor this time versus the community health center? P: No. The community center is too slow. Like sometimes you would be there for like five hours waiting for them to— to check you and it was like—well, I'm doing something…so I prefer to just spend my money. I don't know—for the first time you don't have an appointment. You just go. And then after that they will be telling you like when to come back. I: Do you think there's—they were seeing people that entire time or they were just being slow and doing other stuff? P: They're just being slow. I: And how long does it usually take when you go the doctor's office, compared to the health center? P: Not long. It all depends on who comes first. I: Do you have an appointment there? P: Mm-hmm. I: Okay. So could it be like an hour or two hours or three hours? P: About two. About two or three.*

For this participant, the amount of time spent waiting to see a provider greatly influenced her attitude towards the health system. She chose to obtain prenatal care from a private physician, because she perceived the wait time at the community health center to be too long. Women explained that their busy lives, including work schedules and caring for their other children, influenced their decision-making about where to obtain prenatal care. Many perceived that the extended wait time at community health centers was prohibitive in their ability to address other daily responsibilities; hence they chose a private provider where they could be seen quickly.

A total of 67 strips were included under Code 2: Attitudes towards Health Services, representing the most robust factor in what influences pregnant women's use of health services. The most common sub-codes under Code 2 pertained to a woman's attitudes regarding health

care experiences with providers; attitudes about the differing scope of practice, roles, and abilities of nurses versus physicians; and attitudes about health care experiences with the health system as a whole.

Code 3: Knowledge about Pregnancy

Merriam Webster dictionary defines "knowledge" as the fact or condition of having information or of being learned (2013). Hence, having knowledge about pregnancy refers to knowing that one has been impregnated, or having information about the condition of being pregnant.

Knowledge about Disease is a *predisposing* characteristic of the individual determinants of health utilization theory (see Figure 2). As a theoretical variable, Andersen and Newman define knowledge about disease as a variable that operationalizes a person's predisposition to use, or not use, health services. What a person knows, or doesn't know, about her condition influences her use of medical services. For this study, Knowledge about Disease has been renamed Knowledge about Pregnancy, since the condition of being pregnant requires medical care but is not universally considered a disease-state. A woman learning that she is pregnant or a woman's knowledge about health needs during pregnancy have the potential to encourage use of available health services. This variable, which comes directly from the utilization model, has been labeled Code 3 for this analysis.

A total of 50 strips were included under Code 3: Knowledge about Pregnancy. These fifty strips were assessed for similarities and grouped into 35 sub-codes. These sub-codes were evaluated for similarities and further condensed into clusters, representing the most common sub-codes. The most common sub-codes pertained to women's knowledge about prenatal care and healthy behaviors during pregnancy; diagnostic testing and signs and symptoms of healthy

or unhealthy pregnancy; symptoms and procedures during delivery; and, knowledge about health system processes in St. Kitts and Nevis. Strips containing discussions about women's knowledge about her pregnancy, or about pregnancy in general, as per the aforementioned definition, were included under this code.

As evidenced by what many of the women discussed during the interviews, knowledge about prenatal care and healthy behaviors influenced their experiences with pregnancy and delivery. Knowledge about prenatal care and healthy behaviors is herein defined by the women's comments about topics such as taking prescribed medications and prenatal vitamins; healthy eating and other healthy behaviors to maintain a healthy pregnancy; and, appointment scheduling and frequency of prenatal visits.

Evidence of women's knowledge about prescribed medications and prenatal vitamins is demonstrated in the following quote from one woman who describes the process of obtaining prenatal vitamins to take during pregnancy. She explains that the vitamins can be obtained either directly from the health center pharmacy, or at the local drug store over the counter.

> *If you don't want to take the pills them that they had, when they give you to go. You can go in town by the drug store and buy it. Ask them for pregnant, the prenatal tablets them. But them tablets that I need vitamin, the * have vitamins and everything in it. Which is wind into one tablet.*

This participant went on to explain that the prenatal vitamins at the health center are separated into three different supplements; folic acid, iron, and a multi-vitamin. However, if she purchased the vitamins over the counter, all three supplements are contained in one pill. This participant demonstrated knowledge of her options for obtaining prenatal vitamins.

Another participant's comments provides evidence that women understand the need for prenatal vitamins in the following quote, where she discusses that some days she does not take her medications as prescribed.

> *One of the thing that I think might have contribute to my tiredness is that I am not taking my vitamins as regular as I should…and I guess that have a lot to do with it. But what I find is that the iron, it make me constipated, so sometime I just chose not to take them some days*.

This participant is aware of the necessity of taking her prenatal vitamins and understands that some of her fatigue may be related to not taking her vitamins properly. She is also knowledgeable about the side effects of the prenatal vitamins, stating that she avoids one of the supplements because of the undesirable symptoms it causes.

Women also have knowledge about healthy eating and other healthy behaviors to maintain a healthy pregnancy. As elucidated in the following quotes, women were well aware of the effect that their eating behaviors had on themselves and their babies. One participant explains that, in order to stay healthy, she eats well and makes sure to take her vitamins:

> *I: How do you stay healthy during pregnancy? P: By eating properly. Eating the thing that you know is right. Making sure you get your proper vitamins, that sort of things.*

Underlying this participant's statement is previous education that she has likely received about general healthy eating behavior. She eats what she believes to be 'right', indicating that she has been previously informed about healthy eating.

Another participant provides further evidence of women's knowledge about healthy behavior during pregnancy with her comments about avoiding sweet foods. She had previously discussed her tendency to eat green leafy vegetables to maintain her health and boost her iron levels, and was asked if she maintained her health through any other eating behaviors.

> *P: Don't eat too much sweets! I: And is there anything that you should eat that will help you, aside from greens, are there any certain teas that help during pregnancy? P: No…well I don't know. I don't really know, I haven't come across anything.*

Though this participant was unaware of any additional supplements to help maintain her health during pregnancy, she stated that she had not come across anything, intimating that she was aware that other methods could potentially be available. Along with healthy eating, healthy behaviors were important for women to maintain their health during pregnancy. One participant who describes what she engages in, and what she does not engage in, to stay healthy, demonstrates this.

> *Fruit. To me, just eat like, a little bit of every food group. Mix it, and put it in your food...and what's not healthy is a lot of sweet, and the alcohol, and the smoking and all of that.*

Not only did this participant have the knowledge that healthy eating was important for pregnancy health, she also understood that refraining from over-indulgence in poor quality foods and addictive substances was important for keeping her and her baby healthy.

Exercise was also another important facet of a women's intent to remain healthy during pregnancy. Several women who discussed the safety of exercising during pregnancy evidenced this. The following quote demonstrates one participant's knowledge about what are appropriate exercises to engage in during pregnancy and how to properly perform those exercises:

> *I: Are there any kind of alternative therapies, aside from coming to the clinic or to the doctor, that women do? P: Walk. That's the number one thing, walk. I: To get the baby to come? P: Yes. The more you're walking help exercise your pelvic bone and your back. And so...and, you could lie down like, on your side and get and like this stretch up and down, but I can try (laughs) **

This participant was in the late half of her second trimester. She attempted to demonstrate the exercise, providing further evidence of her knowledge about how to perform it, but was unable

due to the size of her abdomen. This strip documents further evidence that women are knowledgeable about healthy eating and other healthy behaviors to maintain pregnancy health.

Appointment scheduling and frequency of prenatal visits was another cluster of topics about which women demonstrated their knowledge. This supported women's knowledge about how to stay healthy during pregnancy, in that they seemed to understand the importance of early and consistent prenatal care. However, knowledge about the necessity of early and consistent prenatal care was not always reflective of behavior. The following quote is from a participant whose behavior was reflective of her knowledge about the necessity of prenatal care. She discussed how she gained knowledge of her pregnancy, and the resultant action she took to obtain an appointment:

> *Well, it depends on if you find out—sometime you find out. Like I found out from the hospital. I call—I don't even remember what day—I think I called the nurse the next day, which is the private nurse, and book an appointment, and I get the appointment for the next day, which was the third day.*

This participant explains that she learned of her pregnancy while at the hospital for a different reason. She took immediate action to obtain a prenatal care visit at the private physician's office by calling the nurse the very next day. She was able to obtain an appointment promptly. Another participant's discussion provides some evidence that women understand the need for consistent prenatal care. In the following quote, the woman describes how often she typically visits her provider for prenatal check-ups:

> *So I was on a lot of medication, so that was one reason for me to [feel like] something might go wrong with the child, so I was in interested in seeing a doctor right away. And how often do you come, did you say? About once a month. Once a month. Because, me come in and then, they tell me come back today. And then he tell me to come back the ninth of July. And so like, mostly it's once a month.*

This participant had knowledge that her pre-existing conditions might have potentially caused complications during pregnancy, and she recognized the need to obtain early and consistent prenatal care. This provides further evidence that women have knowledge about pregnancy.

Another common cluster of sub-codes that demonstrate women's knowledge about pregnancy pertains to diagnostic testing and signs and symptoms of healthy or unhealthy pregnancy. Women validated their knowledge about pregnancy through their explanations of topics such as laboratory testing and ultrasounds to assess pregnancy health. This was evidenced by one women's description of her first visit to her gynecologist, shortly after discovering that she was pregnant.

> *I found out I was pregnant immediately, within the first month, me didn't see me period, but then I …because I was not taking the pregnancy well I was staying away from the doctor because reality was I didn't want to actually hear it from the doctor. I went to see… Dr. (name) is my gynecologist…so I went to visit him who send me to do all my labs, as a part of the process, and my ultrasound to make sure the baby was okay and how it was going.*

This participant understood the importance of obtaining diagnostic testing early in the pregnancy, though she was reluctant to do so. She also recognized that laboratory studies and ultrasound of the abdomen could help determine if she and her baby were doing well, despite the delay in obtaining care.

Another participant demonstrated her knowledge about pregnancy by describing the process that typically occurs during the first prenatal appointment, including trans-vaginal ultrasound, blood laboratory studies, fetal heart rate monitoring, and documentation of these findings.

> *I: And then what do they do, um, at the first appointment, at the private doctor?*
> *P: Well, they, um, that's when do the ultrasound by insert into the vagina.*
> *Yeah, and then they check with the [inaudible 0:12:31]. Well, I guess he know what he looking for, but what I don't see is he just go like looks at the card and he then sign the*

> *card. He just wanted to see it. And the heart, and plus check the blood sugar at the appointments.*

Though this participant wasn't wholly certain about what the physician was documenting on her patient information card, she recognized that the documentation pertained to her health and the health of her fetus. Also underlying this statement is the participant's differentiation between the types of ultrasound conducted at a first appointment versus subsequent appointments. She was aware that the trans-vaginal ultrasound, as opposed to a trans-abdominal ultrasound, was typically conducted during the first visit.

Knowledge about symptoms of impending delivery and delivery procedures was also evident in women's discussions of pregnancy in St. Kitts and Nevis. Knowledge about delivery is herein defined by women's discussions of topics pertaining to symptoms such as rupture or leakage of the amniotic sac (water breaking); procedures such as delivery induction and caesarean section; locations for delivery; and, provider involvement in the delivery process. Evidence of women's knowledge about symptoms of impending delivery includes the following quote from one participant who explains how she knew that it was time to deliver her baby. This participant describes the increased frequency of prenatal visits once she reached 41 weeks gestation, and the discovery that her amniotic fluid was leaking:

> *I was one week overdue so what they had me do was to monitor me every other day, check the baby, um, heartbeat, and check the fluid to make sure I wasn't draining fluid. Then after that, when they realize that I was losing fluid, then they say "time to go" and they sought me out.*

This participant recognized that, because she was past due, frequent visits were required to ensure the health of the pregnancy. She understood that leaking amniotic fluid was a sign that delivery was impending. Another participant describes her understanding of the appropriate

timing of delivery based on signs, such as amniotic sac rupture, or based on the provider's advice:

> *Oh basically once you…most people just go to the hospital when your water bag break. And once your water bag break you go to the hospital. The doctor, the nurses will contact your doctor and your doctor will come. Sometimes the doctor you might go and visit. You might go to the doctor today, or most time he will tell you "come back" close to your delivery date, so when you come back he will say "okay, go pack your stuff go straight to the hospital". When he finish work that day he will go and come and check on you to make sure and see whatever, but at the same time, nurses there will be monitoring you and they will call him and say well "doctor, she look like she gone deliver at any moment, she is at, say, 7 centimeter you should come on over".*

This participant provided evidence of women's knowledge of delivery in her discussion about multiple phases of the delivery process. She not only described when to go to the hospital if you are not in the presence of providers, but also a typical scenario that could occur if a pregnant woman had recently visited the provider. She goes on to explain the process of delivery after arriving on the obstetrics unit at the hospital, providing further evidence of her knowledge about pregnancy.

On the contrary, some women's comments provided evidence that certain forms of knowledge regarding pregnancy and delivery were limited. As evidenced by the following quote, there was an occasional disconnect between the difference between a premature infant and a low birth weight infant. This participant described deliveries with her previous two children, and explained that she would require a caesarean section for the current delivery. She also described the gestations of previous pregnancies when she delivered:

> *P: So...when my baby is ready, that's when I'm going back to her, cuz she have to deliver...Okay. I: C-section with the other two? P: Yeah. Now my first one was overdue, and my second one... phew...come before he planned. (laughs) I: So... He was premature, the second one? Early? P: Ohh, no they were big!*

What belies her statement is the oft-misunderstood difference, particularly for non-medical professionals, between delivery gestation and newborn size for gestational age. This participant states that her child was delivered early, and when asked about the delivery gestation (prematurity), she responds with a comment about the newborn's large size. This indicates a potential disconnect in women's knowledge about infant prematurity.

Finally, women demonstrated knowledge about certain health system processes pertaining to pregnancy and delivery in St. Kitts and Nevis. Evidence of women's knowledge about health system processes included discussions on topics such as 'booking up', or hospital pre-registration; midwife versus physician attended deliveries; and where to obtain patient education.

Women thoroughly discussed the process of "booking up" which is a term used to describe the process whereby pregnant woman are encouraged visit the JNF Hospital during their third trimester for pre-registration purposes. One participant explains the appropriate time to book up and how the process works. She explains that booking up occurs during the last half of the second trimester, when the physician determines that it is time to register. The physician will call ahead for the patient's booking up appointment at the hospital, and send the expectant mother with papers (a medical record). The hospital staff nurses will then complete the pre-registration process with the mother.

> *Um, I just book up week afore Thursday. But you book up any time as the doctor them will tell you like, when to go book up. So they put in your name and they give the thing. They will tell you when. You mostly go like, six, seven months- when you're close and you could go deliver any time. The doctor gon' gave you the papers, and they do the appointment. So when you go, you give them, and you tell them you come to book up. And then they take you in a room by yourself- uh, with other mothers.*

This participant was very familiar with the booking up process and was able to describe her role in the process, as well as the physician's and the hospital's role. Another participant described the repercussions of not booking up prior to delivery, explaining that she would still be able to deliver at the hospital, but that preparations for her arrival would not have been made:

> *I: What happens if you don't book up? P: Well you still go through the same thing and get your child. But when you book up, it's like, its better cuz everything set up for you.*

This participant's statement provides evidence that women knew about the pre-registration process and the benefits thereof. Another participant's statements support this evidence, with explanation about when to book up and why the process is necessary:

> *P: If I have to book up—and you can't just go to the hospital, something like that, because they tell you you has to come and book up some amount time, maybe two months out, two months before. Then at seven months pregnant you have to go and book up. Yeah, so when you—when you come up there they will done have everything. They'll— to make sure that—I forget, what the thing where to they squeeze the nipple you? I: Colostrum? P: Yeah.*

She explained that the booking up process was necessary so providers were prepared for the patient. She also discussed some of the patient education that occurred during booking up sessions.

Midwife- versus physician-attended deliveries were other common topics of discussion for the women participants. As previously discussed in Chapter 2, the health system in St. Kitts and Nevis provides women with several channels to obtain prenatal and delivery care. Women can choose to obtain private prenatal care, public prenatal care through community health centers, or a combination of the two. At the time of delivery, if a woman has chosen community health center care, a nurse midwife will typically attend. On the other hand, if a woman has chosen a private physician for care, the physician will attend the delivery. If the woman has opted for a combination of the two care settings, she can choose whether to pay a physician for

his delivery services or be delivered by a nurse midwife for free. Interview statements by several women provided evidence that they have knowledge of the options, and recognize different delivery approaches based on the type of provider in attendance.

The following quote evidences this, where one participant described her perception of what occurs during the delivery when an expectant mother chooses a private physician to be in attendance. Her perception was that hospital midwives were forbidden from providing any care to physician-attended patients.

> *P: And the nurse they cannot touch you. So if you in pain. So...as long as your pay you money to a private doctor, the nurse them has no right to deliver you. So you have to wait an all that payment and whenever that doctor reach to the hospital. And that make no sense. Cu' you don't want to be all up here for all hours and *(unintelligible). And sometime it causes a lot of kids to die or come out. You know? I: Waiting for the doctor to get there? P: Yeah, because you have to be waiting. So I'd rather just deal with the hospital and the midwife them*.

In this mother's opinion, it was safer to be attended by a nurse midwife who was already present at the hospital than to be attended by a physician who would be called into the hospital. Despite which provider she felt more comfortable with she perceived physician-attended delivery as less than favorable, which impacted her decision to use private services.

Another common cluster pertaining to women's knowledge about the health system pertained to where they could obtain prenatal education. Women employed a variety of methods to obtain additional information about pregnancy, including reading pregnancy related books, searching the internet, or talking to their providers. Knowledge about how to obtain prenatal education from providers was evidenced in the following quote about where one participant sought additional information:

> *I: Does your doctor give you information like what is in the books? P: No. He does the checkups. If you have like…you have spotting or if you burst your water, or if the discharge is this one color or he will tell you to follow up. Them kind of things, you can call about those.*

This participant described that she preferred to obtain information from pregnancy related books that she had purchased on her own. When asked if she could obtain the same information from the physician, which is where she chose to obtain all of her prenatal care, she perceived that not to be an option. Her experience was that the physician would give advice related to medical diagnoses and treatments only. Another participant described a similar experience with prenatal education. This participant chose to attend some prenatal visits at the community center and some visits at a private office, giving her perspectives on both systems of care. She described that the prenatal education she received at the community health center was very thorough in her opinion, whereas the physician provided education was minimal:

> *P: Oh, yeah, and more time as well because the nurses do spend some time with you, you know, when I went first, I mean I was real interested, and they gave me a thorough exam, you know, head to toe. Yeah, they were really professional. They are young nurses, so really professional. They explained everything, and then they did a thorough exam. I mean I've never had that with the doctor. I: He just does the necessities? P: Yeah, the nurses really do a good job. I: Okay, so then you just decided you would go back there, and then still keep going to your doctor. P: Yeah.*

This participant's statement reinforces the evidence that women do have some knowledge about the health system, including where they perceive to be the best place to obtain prenatal education. These factors influenced woman's decision making regarding where to obtain prenatal care.

There were 50 strips included within Code 3: Knowledge about Pregnancy that grouped into 35 sub-codes. These 35 sub-codes subsequently clustered women's knowledge about prenatal care and healthy behaviors during pregnancy; diagnostic testing and signs and

symptoms of healthy or unhealthy pregnancy; symptoms and procedures during delivery; and, knowledge about health system processes in St. Kitts and Nevis. These were the most common clusters of data representing the knowledge women had about pregnancy and delivery.

Code 4: Price of Health Services

The term "price" is defined by Merriam Webster Dictionary as the amount of money given or set in consideration for the sale of a specified thing (2013). As previously discussed, "health services" is defined by the World Health Organization as all services dealing with the diagnosis and treatment of disease, or the promotion, maintenance and restoration of health (2013). Hence, the price of health services refers to the amount of money given for services dealing with diagnosis or disease treatment, or health promotion, maintenance and restoration.

Price of Health Services is an *Enabling* characteristic of the individual determinants of health utilization theory (See figure 2)(Andersen & Newman, 1973). As a theoretical variable, Andersen and Newman define price of health services as an operationalizing variable under the community factors construct. Community characteristics, along with family characteristics, are considered to be enabling factors in an individual's ability to secure health services. Hence, the price of health services either enables or inhibits an individual from securing those services. This variable, which comes directly from the *Individual Determinants* construct of the model, has been labeled Code 3 for this analysis.

A total of 17 strips were included under Code 3: Price of Health Services, as they related to pregnancy. These 17 strips were evaluated for similarities and grouped into 10 sub-codes. The 10 sub-codes were then clustered based on similarities, with the most common sub-codes pertaining to the cost of medications and health services, and the necessity for women to prioritize personal expenses.

Strips pertaining to the price of health services refer to either the amount of money paid to either the Ministry of Health or to private physicians for prenatal care and delivery services, and for the cost of medications. Currency in St. Kitts and Nevis is the East Caribbean Dollar (EC), which equals $2.70 for every $1.00 United States (USD). It is important to note that services for prenatal care at the community health centers is free of charge for all citizens, so most of the discussions about price of health services pertain to fees charged for delivery at the hospital and/or fees charged for prenatal care and delivery by a private physician.

As evidenced by what many women discussed during the interviews, the cost of health services plays an important role in decision-making regarding where (and how often) to obtain prenatal care. This was demonstrated through sub-codes about fees required for each private physician prenatal visit, fees required for C-section or vaginal delivery, and the costs associated with women's health medications.

Evidence of the effect that price has on women's experiences of prenatal care is elucidated in the following quote from one woman who described the fees associated with obtaining care at a private office:

> *I: Do you have to pay? Each time? P: [Yes]… every visit. I come like every fifth, fourth week a month. So since I'm not working she understand. So I told her I would go here. So...when my baby is ready, that's when I'm going back to her, cuz she have to deliver.*

This participant first visited her private physician, but since she was unemployed she didn't have the money to continue her visits there. Instead, she attended prenatal clinics at the community health centers where the care was free. However, her intent to have the physician attend her delivery lends evidence that, though she preferred private care, she was unable to obtain it based on the associated price.

Further evidence of the effect price of health services has on women's choices for care are expounded in the following strip, where another participant describes her unemployment status and her decision to seek free care:

> *P: Well, you have to pay money to go to a private doctor. But I, remember not working, I don't have no money. So I come to the clinic where it's free, I don't have to pay no doctor fee, just have to pay for my medication. That's why I come here. Um, I don't have any money at the time. So I have to go where I can go. It's free. I: So it's cheaper? P: Yeah. If I was working now, I would get my own doctor. But the nurse them knows how to deliver people like, we ain't got no money to pay doctor to deliver. Cuz when you want a doctor to deliver you, you have to have money to pay them.*

This participant preferred to obtain prenatal care through a private physician's office. However, since she was unemployed, expenses related to that type of care were cost-prohibitive. Instead, she sought prenatal care through the community center, where it was affordable for her. This is an example of how the price of health services affects healthcare utilization.

Another cluster of data surrounding the price of health services pertained to delivery costs. Women expressed their experiences with previous deliveries and the costs associated with caesarean and/or vaginal delivery. Though, in St. Kitts and Nevis, women typically do not have the option to choose caesarean delivery, previous C-sections have impacted their finances to the extent that it plays a role in women's decisions about having more children. Those who were required to have caesarean delivery for previous pregnancies also tended to require caesarean for subsequent deliveries. Because nurse midwives do not perform surgical deliveries, women must pay the physician for surgical services regardless of if they had previously chosen a midwife as the birth-attendant. The following quote provides evidence of the effect that delivery costs had on women's health care decision making. This participant explained that had she known about the free care at the community center, she would have attended some prenatal visits there, instead of the private physician's office, to save money:

> *Yeah. Well, I don't know about the health center, would have gone, especially in the initial stages, yeah. At least you save back some of that money, because you know, my hospital bill, I had to take care of it, and had I had a C-section, that would have cost me thousands—at least $2000.00. I would have had to take care of that, and not been compensated, right, so—*

She explained that if she had required a C-section, she would have had out of pocket expenses in addition to monthly costs associated with private physician care. The additional expenses would not have been planned for, and she would not have been reimbursed. Had she known about the free community clinic care, she would have utilized that service to decrease her out of pocket expenses in the event a C-section was required.

Women also discussed the importance of prioritizing expenses when expecting a child. Many of the women, who were not working, discussed additional financial responsibilities that impacted where and how often they were able to obtain prenatal care. The following quote is from one participant, who explained why she believed that some women did not obtain prenatal care with the frequency that is typically expected of a pregnant woman:

> *Probably expenses. It's very expensive. I have the insurance here, and I maxed out my insurance before I deliver, right. I know, of course—so—they start things so early and so frequently, I guess because if they go to the doctor, to public because of whatever health issues they may have, they may be going to the doctor to ensure that everything is safe, and so they would not start their benefits so early. I think it's expenses more than care for themselves and the baby itself, which is not the best, but I mean yeah, you should make sure that you are okay, so you have to find that money somehow.*

This participant acknowledged that her medical insurance, provided through her employer, enabled her to obtain visits with the recommended initiation and frequency of care. She noted that other women, who may not have insurance, would potentially not obtain care early due to their need to prioritize expenses. She reasoned that if they waited until later in the pregnancy, the expenses associated with private prenatal care would not be so burdensome. She also

intimated that women are typically aware that they need to care for themselves and their babies early, but prioritizing expenses prevents them from doing so.

Finally, women discussed costs associated with prenatal vitamins and oral birth control medications. Prenatal vitamins were available either over-the-counter at an independent pharmacy, or by prescription at the community health center. If obtained at an independent pharmacy, women paid out of pocket. However, if obtained at the community health center, payment was dependent on the patient's student status. This was evidenced in the following quote from one participant who explained her process for obtaining prenatal vitamins:

> *I: But here [Community Health Center] they'll give them to you right at the pharmacy? P: Yeah, and you have to pay. Ten dollars. Yeah, if you're not going to school. Like, me ain't in school right now so I have to pay. I: And its ten dollars a month? P: Mmm..hmm. I: And you have to come back every month and get your pills? P: You usually get those when you come to see the doctor or nurse.*

It should be noted that this participant referred to the cost in terms of East Caribbean (EC) Dollars. Ten EC is equal to $3.70 US. This participant was unemployed at the time of interview, and any cost associated with medications would likely have been burdensome, requiring the participant to prioritize prenatal vitamins over other needs. The cost associated with this health service had the potential to impact her decision to seek care, and/or her decision to follow the prescribed medication regimen during pregnancy.

Evidence of the effect that price of health services has on health care utilization was also presented by the women regarding oral contraceptive pills. Oral contraceptives are available over-the-counter at independent pharmacies in St. Kitts and Nevis. Obtaining the contraceptive pill does not require a prescription. Women were free to obtain oral contraceptives if they so desired, but the associated costs largely influenced their decision to remain on contraception.

The following quote by one participant who discusses the high cost of the Yasmin oral contraceptive evidences this:

> *I: Now you said the Yasmin's expensive. How much is it? P: Forty-five dollars and change. I: Forty-five EC? P: Yeah. Every month. I: Wow. Yeah. So that's about $15 in US, almost? P: Yes, $15 US, $16 US.*

This participant had been taking this specific oral contraceptive for approximately one year prior to becoming pregnant. She described the high cost of the contraceptive in terms of her disappointment in its effectiveness relative to the price. This participant became pregnant while on the oral contraceptive and found out about the pregnancy late in her second trimester. The statement by this participant lends credence to the idea that women are aware of the availability of oral contraceptives, but associated monthly costs may be a deterrent to consistent use.

There were a total of 17 strips under Code 4: Price of Health Services, representing the code with the least amount of data. These 17 strips were evaluated for similarities and grouped into 10 sub-codes. The 10 sub-codes were then clustered based on similarities, with the most common sub-codes pertaining to the cost of medications and health services, and the necessity for women to prioritize personal expenses relative to health care expenditures.

Code 5: Perceived Pregnancy Course

Merriam Webster Dictionary defines the term "perceived" as attaining awareness or understanding, or to become aware through the senses (2013). The term "pregnancy" is defined as the condition of being pregnant. "Course" is defined as the progression through a development or period or a series of acts or events (Merriam Webster, 2013). Therefore, perceived pregnancy course can be defined as "attaining awareness of a series of events pertaining to the condition of being pregnant".

Andersen and Newman do not specifically define Code 5: Perceived Pregnancy Course in their theory. As previously discussed, this code was merged from the condensed codes of Perceived General Health, Perceived Symptoms, and Perceived Diagnosis, which are all operationalizing variables in the Illness Level construct of Individual Determinants (see Figure 2). Therefore perceived general health, perceived symptoms, and perceived diagnosis collectively refer to the individual's perception of their level of illness. According to Andersen and Newman (1973), an individual must perceive illness or perceive that illness is likely to occur, to have a propensity to access health services. In addition, perceptions of the severity of symptoms and level of general health may influence the frequency of health service use. Pregnancy is an event (or series of events) that requires medical surveillance, though it is not always perceived as an illness. Women do not necessarily view pregnancy diagnosis, general health, and symptoms in the same manner that they view illness. Hence, during the initial coding stages, it was difficult to determine mutually exclusive strips regarding general pregnancy health, pregnancy symptoms, and pregnancy diagnosis. For example, certain conditions during pregnancy (e.g. nausea, vomiting) may be considered a general state of being pregnant by some, while others would consider it to be a symptom. This study pertains to pregnancy as the medical condition and analyzing data about the collective experience of the perceived pregnancy course was more applicable.

This code differs from Code 3: Knowledge about Pregnancy, which pertained to what women knew about the general condition of being pregnant. Perceived Pregnancy Course pertains to a woman's *senses*, *beliefs,* or *feelings* about her pregnancy course, specifically. Hence, if a woman perceives her pregnancy to be healthy, she might be less likely to access care early. If she perceives her pregnancy to be unhealthy, or if she perceives symptoms that are

undesirable, she might access care with more consistency. These variables, perceived general health, perceived symptoms, and perceived diagnosis come directly from the *Individual Determinants* construct of the theoretical model. They have collectively been named Code 5: Perceived Pregnancy Course for this analysis.

A total of 66 strips were included under Code 5: Perceived Pregnancy Course. These 66 strips were evaluated for similarities and grouped into 25 sub-codes. The 25 sub-codes were then clustered based upon similarities, with the most common sub-codes pertaining to symptoms experienced during pregnancy (e.g. nausea, 'low blood', pain) and symptoms as a result of a satisfied or unsatisfied fetus. Strips pertaining to women's perceptions of general pregnancy health, symptoms during pregnancy, and perceived diagnoses were including under this code.

As evidence by what many of the women discussed during the interviews, nausea and vomiting were the most undesirable symptoms of pregnancy. For these participants, nausea and vomiting did not necessarily indicate a need to visit a health professional. Rather, women employed a variety of home remedies and self-care methods to minimize nausea and vomiting. This indicates that these symptoms, alone, do not necessarily motivate women to access health services, because they were viewed as normal pregnancy events that were treatable without the expertise of provider.

An example of the effect of nausea and vomiting on women's pregnancy experiences is elucidated in the following strip, from a participant who used over the counter remedies from the local pharmacy to treat her symptoms:

> *I: Is there anything else that helps with nausea? P: Ummm….limacol, bay rum. I: Is it something that you eat? P: Something to smell. Some people use schilling oil. I: Where can you get these? P: At the stores…the pharmacy. Oh they're good!*

Limacol, bay rum, and schilling oil are aromatic oil tinctures that can be used for a variety of purposes. However, several participants expressed that their use of these tinctures was for aromatic purposes to reduce nausea. Further discussion of the use of this complementary therapy is presented in Code 8: Societal Norms related to Health and Illness. Another participant's comments provide further evidence of the effect of nausea and vomiting on perceptions of pregnancy health. This participant explained that she was affected by daily nausea after she reached four months gestation. Her remedy for the nausea was self-care through the use of bush tea each morning before work.

> *Every day sick. I can't leave the house without drinking some bush tea or some kind of tea or I just sick for the whole day. Yeah. Like this morning it really was hard to me, you know. Some—once daily just sick most days. The vomiting and everything came actually after four months I was pregnant, after.*

These strips demonstrate the importance of nausea and vomiting symptoms on a woman's perception of her pregnancy course. While nausea and vomiting are considered to be undesirable symptoms of pregnancy, women do not necessarily seek healthcare for evaluation and treatment. Rather, women employ a variety of alternative methods, including dietary changes and olfactory stimulation, to address these issues.

Women also placed importance on perceived pregnancy symptoms related to anemia. In local dialect, women referred to the condition of anemia as having 'low blood'. Women expressed concerns over having low blood in a variety of ways. However, similarities in the ways women addressed their anemia were evident. As a part of routine prenatal testing, women received regular blood pressure and periodic hemoglobin/hematocrit checks. Evidence of women's apprehension about this condition was documented in a majority of participant interviews, as women placed priority on discussion of this topic. One woman discussed her

perception of what might occur during the delivery as a result of her anemia. She goes on to discuss the actions that she took in an attempt to minimize the symptoms:

> *Like right now my blood is low, so my brother dem went to give blood for me. So after, when I go deliver now, they tell me that, the doctor tell me that the blood will be there in the room in case I need it. Then they just put it in me. But I try to eat up me lot of irons and so...*

This quote supports the condition of 'low blood' as a perceived pregnancy symptom of interest to the women of St. Kitts and Nevis. Additionally, this quote speaks to available social support and the importance her family placed on addressing the condition of 'low blood'. Another participant expressed her perception of her pregnancy course regarding having been diagnosed with anemia. During her first pregnancy she experienced the symptom of dizziness, which subsequently influenced her dietary behaviors, and utilization of health services. She perceived the dizziness that she experienced to be an issue that required medical attention, which influenced her decision to seek care.

> *Well, I have low blood...so I have to always have like, greens. Stuff like to keep me...calm. With my first son that's how I *. Obviously my doctor...that I had low blood...cu' I used to like, always feel dizzy like, gon' pass out. That she find out I had low blood. It was so low, I used to had to go hospital and keep it...keep it up.*

Having 'low blood', or anemia, is a symptom that affects a woman's perception of her pregnancy course to the extent that she will seek evaluation and treatment. Women expressed concerns about the ability of their blood to nourish the fetus, and employed a variety of complementary therapies for self-treatment in addition to medical evaluation and monitoring. There are certain symptoms and diagnoses during the pregnancy course that do motivate women to utilize the health system, lending credence to the Illness Level construct of the theory.

Women also expressed that the symptom of pain was a part of their perceived pregnancy course. Women discussed pain as originating from a variety of locations within their bodies,

which also influenced their care seeking decisions. One participant described her symptom as the feeling of pressure in her perineum, coupled with the bloody show:

> *Alright, just a little pressure underneath of me. And I had the bloody...the bloody slime, um...Sunday morning like about...one o'clock, after one. Went to the hospital, the last time they give me a good checkup- that was yesterday. And so, so I talked to the doctor and tell me to come in here for him to check me.*

The combination of these symptoms influenced this woman's decision to obtain advice from her obstetrician about whether to seek immediate care. Another participant expressed similar concerns about the symptom of pain during pregnancy. When asked how she was feeling during her pregnancy, she responded that she had been feeling well except for having headaches.

> *Mostly, I have headaches. My pressure is not up, but me system sayin might be [something wrong]*.

As a result of her headaches, this woman perceived that her symptom might be the result of an unknown diagnosis. She reasoned that her headaches were not a result of hypertension since her blood pressure was not elevated. She perceived her system (body) to be possibly signaling the need for additional medical care. Though she did not discuss it further, there is potential for this participant to access the healthcare system for evaluation of her headaches, given her perception of the etiology of the symptoms. These strips demonstrate how women's perceptions of pain, as a symptom of pregnancy, might predispose them to accessing the health system depending on their perception of etiology and severity. These participants view pain, unlike nausea and vomiting, as a symptom that necessitates professional medical evaluation.

Another important topic within this code included women's perceptions of the pregnancy course as they pertain specifically to the fetus. Not only did women discuss pregnancy symptoms and diagnoses as they related to themselves, but they also placed high importance on the pregnancy course as it pertained to their unborn child. Discussions about satisfying the fetus and

about determining the gender of the child evidenced this. The following participant discussed the variety of ways in which she attempted to resolve her nausea and vomiting. This participant explained that she tried different beverages, including bush tea, but chocolate milk was the only remedy for her symptoms. She goes on to explain that the reason she continued to vomit after drinking bush tea was that the male fetus did not desire it:

> *Yeah, but...you see when I drink the bush tea it come back up. It does come back up. So he no want no bush tea. He want um, chocolate and milk. Like the ovaltine and cocoa and so. He want that...he no want no bush tea cu', anytime, I used to drink bush tea like a morning and mostly and the night before. And anytime I drink, it come back up- I vomit. So I just stop.*

Not only does this indicate that women use complementary and alternative therapies to address certain symptoms, it also provides evidence of the importance that pregnant women place on the desires or needs of the fetus. Another participant's discussion about fetal dietary desires provides further evidence that women are concerned with satisfying their child:

> *I: So when you get sick it's because you've eaten something that he [the fetus] doesn't like? P: Yeah, yeah, banana. Sleep, sleep, basically just go to sleep. I: Um, did you, did you vomit also or just not eating? P: If I ate banana, I just like vomit it up. [I couldn't] eat banana at all. He doesn't like banana? I: Is there anything he does like? P: Mango*

This participant perceived the cause of her nausea and vomiting as something she had eaten that the baby did not like. When she vomited after eating bananas, it was because the baby didn't like it, but mango agreed with her. Not only do women perceive fetuses as having the ability to decide what to consume, they are also able to communicate changes in these desires from hour to hour. Evidence of this perception is provided in the following description of the variety of foods and beverages one participant attempted to consume in an effort to please the fetus:

> *Yeah, because a morning, I wake up and I make some drink and I go eat, bread and egg- and come back up. Didn't want the drink. So then when I finish, I went go make some tea now. And I drink and it and that's the done. . But...But he didn't want any of that. Didn't want a drink. So I went and I do a next egg, and I...eat piece my bread, and I make some*

tea. So when I drink the tea and I eat, it stay down. So he want something warm, not something cold.

Underlying these statements is the implication that a fetus is capable of having desires, and can express those desires through the presence or absence of maternal symptoms. Women were particularly in-tune satisfaction of their fetus through their diets. The perception that the fetus could elicit maternal symptoms based on his or her own desires was specific to gastrointestinal symptoms. Women did not perceive other bodily symptoms to be related to fetal desires, providing evidence that women perceive their dietary actions as having direct affects on fetal health.

There were 66 strips under the code of Perceived Pregnancy Course, representing two clusters. Strips pertaining to the woman's physical health (e.g. nausea, low blood, pain) were the biggest clusters, representing 39 of the strips. Strips pertaining to fetal health were another common cluster that included feeding/satisfying the fetus and fetal gender. Women's perception of pregnancy course incorporated a variety of perceived symptoms, but very few perceived diagnoses. Women did not view general pregnancy health in terms of a healthy versus an unhealthy pregnancy. Rather, women perceived general pregnancy health as a measure of whether they were feeling good or bad. If they felt good, they perceived themselves to be healthy and vice versa.

Code 6: Evaluated Pregnancy Course

Merriam Webster Dictionary defines the term "evaluated" as determining the significance, worth, or condition of something usually by careful appraisal and study (2013). The term "pregnancy" is defined as the condition of being pregnant. "Course" is defined as the progression through a development or period or a series of acts or events (Merriam Webster,

2013). Therefore, evaluated pregnancy course can be defined as "determining the condition of the pregnancy and related events through careful appraisal and study".

Andersen and Newman do not specifically define Code 6: Evaluated Pregnancy Course in their theory. Similar to Code 5, this code was merged from the condensed codes of Evaluated Symptoms and Evaluated Diagnosis (see Figure 2), which are operationalizing variables in the Illness Level construct of Individual Determinants. Therefore Evaluated Symptoms and Evaluated Diagnosis collectively refer to clinical evaluation of the illness. According to Andersen and Newman (1973), when an individual perceives illness, s/he will access health services in an attempt to understand the illness. Clinical judgment, of the severity of symptoms or diagnoses, has the ability to further influence an individual's use of the health system. Pregnancy is an event (or series of events) that requires medical surveillance, though it is not always perceived as an illness. Women do not necessarily view pregnancy evaluation in the same manner that they view illness. For example, certain conditions during pregnancy (e.g. bloody show, weight gain) may be considered a general state of being pregnant by some, while others would consider it to be a symptom. Diagnostic evaluations such as ultrasound, urinalysis, and lab studies are used to evaluate general pregnancy health, however use of these methods does not necessarily constitute evaluation of an illness. Hence, during the initial coding stages, it was difficult to determine mutually exclusive strips regarding evaluated symptoms and evaluated diagnosis. Since this study pertains to pregnancy as the medical condition as opposed to illness, analyzing data about the collective experience of the Evaluated Pregnancy Course was more applicable.

If medical evaluation of a women's pregnancy suggests a healthy pregnancy, a woman might be less likely to access care with consistency. However, previous medical evaluation for

comorbidities might influence women to access early, consistent prenatal care. These variables come directly from the *Individual Determinants* construct of the theoretical model. They have collectively been named Code 6: Evaluated Pregnancy Course for this analysis. This code differs from Code 5: Perceived Pregnancy Course in that strips containing women's direct experiences with evaluation by a care provider or with the health system were included here.

There were 24 strips under this code, which were evaluated for commonalities and grouped into 16 sub-codes. The sub-codes were then clustered based on similarities, with most common sub-codes clustered into topics pertaining to diagnostic and laboratory testing, prenatal evaluation, and delivery.

For example, evidence of women's experiences with diagnostic testing by a medical provider is elucidated in the following quote from one woman who explained the process of undergoing a fetal ultrasound at the community health clinic:

> *P: And they did an ultrasound. I: Did they do the one on top of your belly or inside?*
> *P: Yeah, on the belly, on top my belly, yeah. I wouldn't let them go inside me.*
> *Yeah, the private doctor does it, but I wouldn't let them do it, them in the health center do it or the hospital do it.*

The participant discussed her feelings that a trans-vaginal ultrasound would only be acceptable for her if conducted in the private physician's office, but not at the clinic or the hospital. This participant was one of few who chose to obtain care at both the community clinic and the private office throughout her pregnancy. Underlying this statement is the participant's opinion of acceptable forms of evaluation depending on the location. This supports the theory that medical evaluation can influence women's decision making regarding healthcare utilization, in that the type of evaluation the woman perceived she needed subsequently influenced the location where she sought care.

Another example of the ways in which medical evaluation influences utilization of health services is elicited in the following quote. This participant discussed her history of hypotensive issues and the resultant worry and changes to her diet. She was relieved to have received a normal blood pressure reading during her community clinic visit, citing that the nurse checked her pressure prior to sending her in to see the physician:

> *I: How's your pressure now? P: Well, it's been low. Yeah. I try not to worry. I don't wanna to worry about myself. I don't eat, not nothing with salt and cheese. I think them kind of thing usually raises it. I: How did she know your blood was low? Did she do a...P: Umm, she check my blood. They just check we blood and so, we wait and so, before we go into the doctor.*

This participant attended her appointment at the community health center during the high-risk pregnancy clinic, as physicians are generally only present at prenatal clinics to evaluate high-risk patients. Given the women's history of having previous high blood pressure readings, she was influenced to maintain regular visits to the clinic based on prior medical evaluation. This provides evidence that evaluated pregnancy course does have an influence on women's use of medical services. The perception of symptoms related to infant wellness also played a part in pregnant women's desires to obtain medical evaluation. As elucidated in the following quote, some women believed that important laboratory tests during prenatal visits pertained specifically to the infant. The following quote, from a participant who described the process of receiving urine glucose evaluation during a prenatal visit, evidences this:

> *I: And your sugar has been fine, too? P: It been good, yeah. I: Cause they just did one time, and then—P: No, every time you go to your doctor visit you do your sugar. I: Okay. Do they prick your—poke your finger? P: No, they have, um, they do it from your urine. Because like for you just in eat in the morning. If you have—if the baby has sugar. I think it's the baby's sugar that they—the part is they checking from your urine, not from your blood.*

This mother perceived the specific type of glucose testing to be an evaluation of the infant's glucose level, whereas blood glucose testing was for the mother. While this provides further

evidence for the need for more prenatal education, it does demonstrate that women are interested in medical evaluation of the child, which may encourage women to seek care more often.

The second cluster of sub-codes that were the most common under Code 6: Evaluated Pregnancy Course pertains to general prenatal care topics. These strips, while not specifically related to laboratory or diagnostic testing, also focused on evaluation and treatment by a provider during the prenatal period. Evidence of the effect that medical evaluation has on service utilization is elucidated in the following quote from one woman who explained that during her pregnancy, she suffered from nausea and vomiting, and low blood:

> *P: From since they gave me the pills them to take, I don't like vomit later. I: What kind of pill is it? P: Vitamin C. Ifa, and folic acid. I: And do you take each of those...how do you take those? P: Once a day. But today, the doctor tell me um...take two ifa cuz my blood was kind of low. But once a day we take them.*

This participant received medical evaluation regarding her symptoms. This participant had received a prenatal vitamin prescription at an earlier visit to treat the vomiting. At a subsequent visit, she was requested to take additional iron supplements to address the anemia. This demonstrates that initial medical evaluation can encourage women to obtain follow-up visits, particularly if they are being treated for a symptom or diagnosis.

Another example of the influence early medical evaluation has on subsequent utilization of services is elucidated in the following quote, from one participant who describes her struggle with weight gain during pregnancy as it related to hyperemesis:

> *Actually I go, I don't even since I—since I got pregnant I'll actually lose a bit. So. And the doctor was asking me how I was vomiting badly, but I told him, "No, some I used to vomit in the morning. I don't vomit now because I drink the bush tea to keep me going most the day. So I don't vomit now, so…me ain't gaining no weight, just losing weight. Two pounds, like every month lose two pounds, five pounds.*

This participant received regular evaluation of her weight as a normal part of the prenatal visits, but also received more detailed evaluation and guidance as a result of her difficulty gaining appropriate weight. Medical surveillance, of the signs and symptoms related to her weight, was her impetus for continued follow-up visits. Women who obtain early evaluation may be more consistent with prenatal visits throughout the duration of the pregnancy.

Finally, topics pertaining specifically to delivery clustered under the code of evaluated pregnancy course. Women predominantly discussed patient education in preparation for delivery, evaluation of signs of impending delivery, and care received during/after confinement.

Patient education was a common topic throughout many conversations with participants. Evidence of patient education during medical evaluations is elucidated in the following quote from a participant who describes the pre-registration process prior to delivery, and the education she received during the session:

> *And they tell you what to walk with to the hospital. Like, mothers have to walk with pad, your nighty, a maternity bra, your roller and your toothbrush. So the paper is like * have what the mother to walk with and what you should walk with for the baby.*

The pre-registration process of 'booking up' typically occurs during the seventh month of gestation. Their primary care provider, to provide information to hospital staff regarding the pregnancy course and to receive education about the expected events during delivery, refers women to the hospital. Interviewees, particularly first time mothers, expressed how much they valued the opportunity to meet the hospital staff, see the obstetrics unit, and receive the education. The opportunities presented by the pre-registration process may encourage some women to continue obtaining prenatal evaluation through the third trimester.

Women also used the health system for evaluation of symptoms related to impending delivery. When women perceived that delivery time was nearing, they tended to make more

frequent visits to their provider. This is evidenced by the following quote, by a mother who experienced vaginal blood loss and sought medical evaluation for her symptoms:

> *P: So...I went here today to check and do a checkup. Yeah, they checked me, but just because she didn't see no more blood come out, she just *(unintelligible) there's nothing. I: And just send you on? So you came here today to see the obstetrician? P: Yes. Cu' that was just yesterday morning. And that was over at [the hospital]? Yeah.*

The perception of the severity of her symptoms led this participant to seek evaluation at the hospital, likely as a result of her belief that delivery was impending. When she was cleared to go home by hospital staff, she decided to obtain further evaluation by her physician on the same day. This demonstrates how perceived severity of symptoms influences women's use of health services.

Finally, women commented quite frequently on their experiences with evaluation by medical providers during confinement. Evidence that women's care experiences influence their perceptions of pregnancy and prenatal care is illuminated in the following quote from one participant who discussed the care provided by hospital nurses after delivery:

> *(laughs) That was the only thing, I was like, yuck. To see that they * to be doing all of that. That's the only thing I was like, kind of skeptical of. She said well we have to * and you can get up off the bed and they put me in a wheelchair. Put me in the next bed, let me sleep and everything. And Dr. [name] is the pediatrician for up there, so he had to came up to check the child while I was sleeping. And I got to rest, everything- they don't shove no child on me and all of that. And so...*

This participant related that she had a pleasant experience with the nurse's evaluation of her, and the physician's evaluation of her newborn infant. She was comforted by the care she received and reassured that she and her infant were well. According to utilization theory (Andersen & Newman, 1973), when an individual perceives illness, s/he will access health services in an attempt to understand the illness and clinical judgment has the ability to further influence the individual's use of the health system. For this mother, continued use of the medical system is an

unknown since she and her infant were well, though her positive experiences may lend some influence.

For Code 6: Evaluated Pregnancy Course, there were 24 strips that grouped into 16 sub-codes. The 16 sub-codes clustered into topics pertaining to diagnostic and laboratory testing, prenatal evaluation, and delivery. These were the most common clusters of data representing how clinical evaluation of women's signs and symptoms during pregnancy have the ability to influence subsequent utilization of health services.

Code 7: Social Support

Social Support has been defined in psychosocial research literature as the various resources provided by one's interpersonal ties, which have a moderating effect of life stress-health relationship (Cohen & Hoberman, 1983). Theories about social support are widespread and have been used to explain human behavior in a myriad of disciplines, including nursing.

Anderson and Newman do not define social support as a component of the Societal, System, and Individual Factors Affecting Utilization of Health Care Model (Anderson & Newman, 1973). Rather, social structure is a construct that incorporates many variables that operationalize an individual's predisposition to seek care. Variables within the social structure construct include education, race, occupation, family size, ethnicity, religion, and social mobility. These variables were collected using the Demographics Form completed by each woman during the interview and serve as sample descriptors. Additionally, the utilization model includes a separate concept of Societal Determinants (see Figure 1), which includes the availability technology and social norms related to health and illness. As presented in the theoretical model, societal determinants have a direct affect on Individual Determinants of health utilization. Therefore, technology, social norms, and social structure can be collectively defined as social

support: the various resources that moderate the life stress-health relationship. (Cohen & Huberman, 1983).

For this study, the code for social support was chosen in an open coding method because of the investigator's knowledge of what was contained in the data and the important role that social support plays in pregnancy health (Dennis & Kingston, 2008; Lancaster et. al, 2010; Nkansa-Amakhra et. Al, 2009;) During the interviews, women were asked specific questions about their perceptions of available social support. The following were predetermined questions for the semi-structured interviews: who provides support to you during pregnancy and does your partner/family help you during pregnancy?

There were a total of 39 strips within this code. These 39 strips were evaluated for thematic similarities and subsequently grouped into 20 sub-codes. The 20 sub-codes were then analyzed for similarities, and clustered into four topics that represented the most common sub-codes. The most common sub-codes pertained to self-reliance, familial support, rapport with providers, and other societal factors. Strips containing discussions about factors that moderate women's life-stress and health, as per the aforementioned definition, were included under this code.

As evidenced by what many women discussed during the interviews, the ability to rely on oneself for support during pregnancy moderated a woman's life stress and health. Self-reliance during pregnancy is herein defined by the women's discussions about her level of stress, her marital status as it relates to support within the home, self-education about pregnancy topics, and financial stability.

Evidence that women perceive self-reliance to be an important part of support during pregnancy is elucidated in the following quote, from one woman who described how she deals with stress related to heading a household:

> *And always being home, and I got two kids to support, have mortgage to pay, bills to pay...and I cannot rely on my family now. Cu' he like, me mother, me mother, me mother...so. He kind of stressin'...but, I still got upset about it. And at times when I breakdown...but, you just gotta pray*

This participant expressed that she relied on herself during pregnancy because of the absence of support from her significant other. The lack of support from the baby's father caused additional stress related to finances. Additionally, the time-restraint of raising and supporting other children may have affected this participant's consistency with prenatal care visits.

Another participant's comment provides evidence that, during pregnancy, some women rely on themselves for support. The following quote is from one woman who discusses that the pregnant mother is often the one who supports the pregnancy solely:

> *Well, most the time it has to be mother of the child, which is like me. Because sometime it's hard on them (the father of the child). You try to tell them that you're pregnant, they're gone. Well, my daughter first pregnancy, the father was—he was… he was there, but it just like he was running around and was [with] the next woman. All I say is that I want you by myself, and then went to back to live with me mother. So it was just basically me and my mother.*

This participant also lacked support from the father of the baby, and relied upon herself and her mother for support. Additionally, because she perceived the significant other to be unfaithful, she decided to move out of their shared home and back in with her mother for support. Again, the level of self-reliance, lack of support from the father, and other sources of life-stress had the potential to impact this woman's consistency with prenatal care. The conversation about significant others, for many women, included the unfortunate circumstance that the father of the baby was often not present.

The ability to rely on one's family for support also moderated a woman's feelings of social support, as evidenced by women's statements. Familial support is herein defined by the women's discussions about support (or lack thereof) from significant others, parents or grandparents, siblings of the pregnant woman, and older siblings of the unborn child. An example of this type of support is elucidated in the following quote, from one participant who described the people in her circle that she could rely on for support during pregnancy, and the special relationship that she had with her sister:

> *I could talk to me mother, a good friend of mine, my friend them and my boyfriend. I could talk to...yeah Umm...most I see is my sister. I have a sister that look like me. So like, if I feel pain... something...people ask if we are twin, but we are not...she will feel it. If she sick, I feel it. So like, that where I go. She know when I sick, me know when she sick.*

This woman's support extended to family, friends, and her boyfriend. In addition to emotional, and possibly financial support, this participant benefited from psychosocial support from her sister. The idea that her sister had a special connection with her and with her pregnancy symptoms likely provided a greater intensity of support that had the ability to moderate the life-stress health relationship for this participant.

One participant also described social support from her older children. She explained that as a single mother with a full-time job, being pregnant caused her to suffer from constant fatigue. She relied on her older daughter to look out for the younger son while she napped to regain energy:

> *You're always tired. All I did was sleep, just go to bed. If you have other kids to take care of, it's hard? Um, hmm. When they're gone I just sleep. But my daughter, she's there so she just [watch] her and her brother so I just sleep away.*

Underlying this participant's statement is the lack of social support that was available to her during her pregnancy. It is unclear how old the older daughter was, but other conversational

context led to the assumption that the daughter was an adolescent. The lack of energy, coupled with the lack of social support, likely affected the life-stress health relationship for this participant.

Women also asserted the importance of provider rapport as a moderator of their life-stress. This was evidenced by their discussions about emotional support from physicians and nurses. The following quote, from one participant who discussed the lifestyle advice given to her by her physician, evidences this:

> *And then when I go to the doctor he come for and they did an ultrasound and everything [fading voice 0:17:39]. And I went short on me meds and then I just kept on. I had [*name*] doctor and he said, "Look, you're bringing a baby into this world and now it's time for you to change your lifestyle."*

This participant received social support from her physician in the form of encouragement to change her lifestyle so that it's more compatible with raising a child. Support from her provider was very valuable to this participant, who admitted to leading an irresponsible lifestyle up through the first few months of pregnancy until this visit with her provider. Appropriate social support from family or friends may have encouraged this woman to begin leading a healthier lifestyle sooner. This demonstrates the positive affect that good provider support, along with a trusting rapport, can have on pregnancy health.

Another participant's comments provide evidence that good patient/provider rapport is an important component for women to feel socially supported. This participant described the relationship that she had with nurses at the community health center in her neighborhood, and the knowledge that she could call and speak with a nurse at any time:

> *I: How about the nurses here? Do you... are you able to call them? Or not really, that's not the way really works? P: Yeah, you can...you can just catch up with...come talk to them. And they here listening to you. That's what they're for.*

This participant perceived that one of the job responsibilities of the community center nurse was to provide support to community members. The easy rapport that she described likely encouraged her use of the community health center, and moderated her life-stress. Another participant's comment about speaking with the hospital-based nurses for advice supports the idea that nurses are a source of social support for women in St. Kitts and Nevis:

> *No. I just call—I—if something is wrong I could call the hospital doctor and I talk to them because they ain't know who they're talking to on the phone. So I would explain the problem to them and they will tell me, "You must come up here your [appointment] is with your doctor." But you can also call—I can also call my private doctor.*

This participant perceived the availability of social support from nurses and from her private physician. The multi-faceted social support structure available to this woman is ideal, in that she had several options for support to help moderate stress.

Finally, women discussed social support in terms of societal factors that help moderate stress, including government and employer support. Several participants discussed the maternity benefits and leave program that was available to assist them after delivery. Women, who have worked and contributed a certain number of payments into the system, are eligible for social security benefits during maternity leave. These benefits include a one-time lump sum payment within the first month after delivery, and monthly stipends while on maternity leave. This financial support and recovery time was highly valued by the women interviewed, as evidenced by one participant's discussion of the process to obtain maternity benefits:

> *P: Social Security pays you. I: So do they pay you close to what you make, or do they just pay you a set amount? P: They pay 64 percent of what you family and your work supports the baby with. But you get it in a lump sum but the check—you can get a like, you got a check for the baby [inaudible 0:27:09] change right away. But only check. They have dates on them, and you have to change them after the date, on or off of the*

dates.

Further discussion of the details of maternity benefits are presented in section on observational data. However, the frequency with which women discussed this topic indicated that this benefit provided women with a sense of some financial security, which served as social support.

Finally, one participant discussed the perceived lack of support from her employer. Employer support is herein defined by this woman's discussion about receiving time-off for fatigue, nausea and vomiting, and other symptoms she experienced during the first trimester of her pregnancy:

> *I: Was your employer supportive? P: No, I stopped. I: Were they supportive if you stay at home? P: No, they just find somebody else. I'm out. I was sick bad with (name). Sleeping. That's why I won't get any more kids because I'm always sick.*

Because her employer was unsupportive of the woman's absences related to pregnancy symptoms, she had to quit her job. This likely led to additional stress in the form of financial burden. Additionally, because of her history with hyperemesis and her negative experience with employer support, the woman decided that she was not going to have any more children. Employment and employer relations represented a very influential factor in moderating life-stress health for pregnant women.

There were a total of 39 strips within this code. These 39 strips were evaluated for thematic similarities and subsequently grouped into 20 sub-codes. The 20 sub-codes were then analyzed for similarities, and clustered into four topics that represented the most common sub-codes pertaining to self-reliance, familial support, rapport with providers, and other societal factors. These were the most common clusters representing what women perceived to be their social support structure during pregnancy and postpartum.

Code 8: Societal Norms related to Health and Illness

The term 'society' has been defined as a community, nation, or broad grouping of people having common traditions, institutions, and collective activities and interests (Merriam Webster, 2013). The term "norms" refers to a pattern or trait taken to be typical in the behavior of a social group (Merriam Webster, 2013). Hence, societal norms related to health and illness can be defined as the typical patterns or traits of a community having common traditions related to health and illness.

Social Norms is an operationalizing variable within the *Societal Determinants* construct of health care utilization (see Figure1). Social norms, along with technology, have the ability to influence the *Individual Determinants* of health service utilization. As a theoretical variable, Andersen and Newman define social norms as "a description of social control as representing the spectrum of modes whereby social systems induce or insure normal compliance on the part of members (Anderson & Newman, 1973, p 8)." In other words, social pressures have the ability to influence members of a society to conform or comply with certain beliefs or behaviors. If the social system supports use of a particular form of treatment for a specific ailment, members of the same society are induced to follow through social pressure. This variable, which comes directly from the *Societal Determinants* construct of the theoretical model, has been labeled as *Code 8* for this analysis.

A total of 28 strips were included under Code 8: Societal Norms related to Health and Illness, as they related to pregnancy. These 28 strips were evaluated for similarities and grouped into 18 sub-codes. The 18 sub-codes were then clustered based on similarities, with the most common sub-codes pertaining to complementary and alternative therapies, and spiritual norms.

Strips containing discussions about health beliefs, traditions, or practices not incorporated under the traditional medical model were included under this code.

The most common form of alternative therapy during pregnancy was the ingestion of various types of teas made from indigenous plants. Locals refer to the variety of plants used for homemade tea, collectively, as bush tea. Bush tea is commonly made from lemongrass, basil, and ginger harvested from the individual's own yard. One of the most common topics that transcended the interviews, the ingestion of bush tea is a traditional remedy for a variety of ailments and health conditions both during, and outside of, pregnancy. Evidence of this traditional form of complementary medicine is provided by the following quote, from one participant who explained that many pregnant women use bush tea in addition to prenatal vitamins:

> *I: Do people still, do a lot of people use bush tea, lemongrass, and that sort of thing instead of pills? P: Yes, yes. Mmm...hmm. But you still have to take the pills that the doctor prescribed for you because them help you with your blood and to give your child vitamins and stuff. But you can go out and buy your own...*

Her discussion of using bush tea, in conjunction with prescribed medications provides an example of social norm related to health and illness that is intended as a complement to western medicine. Another participant described the use of bush tea as an alternative to western medicine. She explained how lemongrass tea could be used to treat the flu:

> *I: What does bush tea help with? P: Well, when you're getting the flu and so, you could drink that. Especially lemongrass, its sweat- when you got a fever, when you're getting the flu you get lemongrass. The long white thing. It will sweat out your sickness; it will make you sweat it out. Yeah, but they have different bush for different thing, but I don't really know all like that. I know lemongrass. But lemongrass, even if you ain't sick, you still try it and make good tea. You drink nice*.

The social norm is the belief that lemongrass tea makes an individual perspire, which helps to relieve the body of fever and illness. In addition to using bush tea for illness, the participant

explained that lemongrass could also be ingested as a tea to enjoy on a regular basis. The following participant who explained that ginger tea could help reduce pain and rid the body of toxins after delivery provides additional evidence of the importance of bush tea:

> *P: I know after I have my baby my mom bring ginger tea. But that's it. They say its good, to help you. I: Okay. How often do you drink ginger tea? P: You could drink it any time. It could be once a day, but when I have my C-section, it's like every day. And for like the pain, it is good for clean out.*

These are examples of a social norm that might serve as an alternative to medical care. Underlying this is that participants, who use alternative forms of medicine, like bush tea, may not access health services and obtain clinical evaluation for symptoms as often as those who choose to refrain from this social norm.

Other beverages that women consumed as a complement to western medicine were purported to 'build the blood'. In other words, the ingestion of certain beverages, such as Vita malt, Giant malt, and Guinness beer were believed to help increase the women's red blood cell counts when she perceived she had, or was diagnosed with, anemia. As aforementioned in Code 5: Perceived Pregnancy Course, women placed high importance on the quality and quantity of her blood and its ability to properly sustain her fetus. It was common for participant's to discuss these beverages as a daily supplement to other forms of self-care and medical care. The following quote, from one participant who described the available types of malt beverages, evidences this:

> *I: What's the malt? P: Okay, we have two different kind. Vita-malt, and giant malt. It's the giant malt I supposed to drink. I: And is that...is there vitamin...like a vitamin drink? P: Something to build up your blood. Just like Guinness. Yeah, but Guinness more stronger. I: How often do you have to drink the giant malt? Every day or...P: Well at least once a day, but sometimes I drink it like, two, three times a day. I: Is it just for the blood or does it have other stuff in it? P: Yeah, for the...for the blood.*

Drinking malt beverages, either with alcohol or de-alcoholized, is a social norm supported by the belief that the beverage supplies the body and blood with strength and helps replenish bodily fluids. While the purpose of this study is neither to support nor refute the foundation of social beliefs, the use of this alternative therapy may discourage formal evaluation of symptoms by a health care provider. If the norm is to treat anemia of pregnancy using malt beverages several times a day, the number of visits to a health care center may be reduced by self-treatment.

Traditions and beliefs passed down from elders constituted another cluster of social norms related to health and illness. Women were asked if spirituality played a role in pregnancy health, and if they had received stories or advice passed down from elders. Many women discussed prayer and avoidance of evil spirits or people as important components of spiritual health for them and their child. When women discussed prayer, it seemed to be in relation to a connection with a higher being. Avoidance of evil spirits, on the other hand, was representative of beliefs in folk magic or witchcraft. Evidence of the remnants of Obeah, one of the less common West Indian religious practices left over from slavery, is elucidated in the following quote from one participant who described her beliefs about avoiding harm during pregnancy. She explained that advice passed down from her elders included avoiding eating anything from people she did not know, because the acceptance and ingestion of food might provide evil people with the opportunity to harm her and her child:

> *My grandmother...like, don't take food from who you don't know. That's something they said. You eat from who you know, not from who you don't know. And this is during pregnancy or in general? During pregnancies. It could hurt you...but like, when you pregnant you can't eat from...if I know you I could eat from you. But if I know you...not because my mother know you. I have to know you from, like, when I was small.*

This participant's comment provided evidentiary support of several important findings. First, social norms and beliefs are often passed down from elders through generations and this includes

norms related to health and illness. Second, while maintaining pregnancy health is typically limited to the pregnant woman and her provider, there are cases where women perceive their health to be directly affected by strangers. This suggests that holistic prenatal evaluations, including spiritual practices and beliefs, may enhance communication between mothers and providers and ultimately lead to healthier pregnancy outcomes. Third, societal norms concerning health and illness include less common forms of religion such as Obeah, which may include forms of witch doctoring. The use of bush teas, malt beverages, and beer as alternative therapies could potentially represent remnants of folk medicine.

Finally, in contrast to harm by evildoers, many women believed in prayer and church attendance as a form of protection from illness. These beliefs were evidenced by the following quotes where participants explained advice handed down to them from their elders. One participant described protection from illness in terms of prayer for a good pregnancy. Her desire to get to the 'safe time' (likely referring to completion of the first trimester) was supported through prayer, which is an example of a local social norm:

> *I: Are there any stories or religious aspects of pregnancy? Do you have to pray for a good pregnancy? P: Oh yeah, I just pray. I just pray and say, um, I want to get to the safe time. Sometime I gotta pray no... I just pray, I just pray.*

For this participant, prayer was a social norm to which she subscribed that had the ability to affect her health. Another participant described how to keep the infant safe during pregnancy by taking the child to church. This provides evidence of the belief that the fetus, as well as the mother, is spiritually and physically vulnerable unless protected by a higher power through faith. The following quote is from one participant who answered the question about stories passed down from elders:

> *P: Take them to church! I: Even when in your belly you need to take the child to church? P: Yes. I: Well, that's interesting because the child—will the child learn or will he be*

blessed? P: [Yes] That, that's after, after it's, um, mostly four months. Somewhere in there.

This quote provides further evidence that prayer, religion, and spirituality are important social norms related to health and illness during pregnancy and postpartum. Women relied on complementary and alternative therapies, as well as spirituality, to enhance their health and provide protection from illness. Though this code is not intended to present an exhaustive list of social norms related to health and illness, it does provide some information about the most common social norms during pregnancy.

For Code 8: Societal Norms related to Health and Illness, there were 28 strips that grouped into 18 sub-codes. The 18 sub-codes subsequently clustered into topics pertaining to complementary and alternative therapies, and spiritual norms. These were the most common clusters of data representing some of the social norms women related to during pregnancy and postpartum. These social norms have the ability to affect the individual's use of health services during pregnancy.

Summary

For Code 1: Values Concerning Health and Illness, there were a total of 40 strips that grouped into 26 sub-codes. The 26 sub-codes subsequently clustered into values pertaining to the women's holistic well-being, the importance women place on having a healthy/happy baby, and the significance placed on personal privacy regarding health matters. These were the most common clusters of data representing what women believe to be intrinsically valuable or desirable about health and illness during pregnancy and postpartum.

A total of 67 strips were included under Code 2: Attitudes towards Health Services, representing the most robust factor in what influences pregnant women's use of health services.

The most common sub-codes under Code 2 pertained to a woman's attitudes regarding health care experiences with providers; attitudes about the differing scope of practice, roles, and abilities of nurses versus physicians; and attitudes about health care experiences with the health system as a whole.

There were 50 strips included under Code3: Knowledge about Pregnancy that grouped into 35 sub-codes. These 35 sub-codes subsequently clustered women's knowledge about prenatal care and healthy behaviors during pregnancy; diagnostic testing and signs and symptoms of healthy or unhealthy pregnancy; symptoms and procedures during delivery; and, knowledge about health system processes in St. Kitts and Nevis. These were the most common clusters of data representing the knowledge women had about pregnancy and delivery.

There were a total of 17 strips under Code 4: Price of Health Services, representing the code with the least amount of data. These 17 strips were evaluated for similarities and grouped into 10 sub-codes. The 10 sub-codes were then clustered based on similarities, with the most common sub-codes pertaining to the cost of medications and health services, and the necessity for women to prioritize personal expenses relative to health care expenditures.

There were 66 strips under Code 5: Perceived Pregnancy Course, representing two clusters. Strips pertaining to the woman's physical health (e.g. nausea, low blood, pain) represented the biggest cluster, representing 39 of the strips. Strips pertaining to fetal health were another common cluster that included feeding/satisfying the fetus and fetal gender. Women's perception of pregnancy course incorporated a variety of perceived symptoms, but very few perceived diagnoses. Women did not view general pregnancy health in terms of a healthy versus an unhealthy pregnancy. Rather, women perceived general pregnancy health as a

measure of whether they were feeling good or bad. If they felt good, they perceived themselves to be healthy and vice versa.

For Code 6: Evaluated Pregnancy Course, there were 24 strips that grouped into 16 sub-codes. The 16 sub-codes clustered into topics pertaining to diagnostic and laboratory testing, prenatal evaluation, and delivery. These were the most common clusters of data representing how clinical evaluation of women's signs and symptoms during pregnancy have the ability to influence subsequent utilization of health services.

There were a total of 39 strips within Code 7: Social Support. These 39 strips were evaluated for thematic similarities and subsequently grouped into 20 sub-codes. The 20 sub-codes were then analyzed for similarities, and clustered into four topics that represented the most common sub-codes pertaining to self-reliance, familial support, rapport with providers, and other societal factors. These were the most common clusters representing what women perceived to be their social support structure during pregnancy and postpartum. For Code 8: Societal Norms related to Health and Illness, there were 28 strips that grouped into 18 sub-codes. The 18 sub-codes subsequently clustered into topics pertaining to complementary and alternative therapies, and spiritual norms. These were the most common clusters of data representing some of the social norms women related to during pregnancy and postpartum. These social norms have the ability to affect the individual's use of health services during pregnancy.

Emergent Categories

Categories were determined by evaluating clusters of data within each of the eight previously discussed codes, comparing data clusters across codes, and further condensing them

to uncover similarities. Data clusters from each code are presented in Table 4 along with preliminary category labels.

Table 4. Emergent Categories- Interviews with Pregnant/ Postpartum Women

Code	Clusters	Preliminary Categories
Values Concerning Health and Illness	1. Women's Holistic Well-being 2. Healthy/Happy Child 3. Personal Privacy	1.Women's Health -Physical -Emotional -Financial -Spiritual 2. Child's Health 3. Patient Provider Relations
Attitudes towards Health Services	1. Experiences with Providers 2. RN vs. MD Scope of Practice/Roles 3. Experiences with Health System	1. Patient Provider Relations 2. Patient Provider Relations 3. Health System Factors
Knowledge of Pregnancy	1. PNC and Healthy Behaviors 2. Diagnostic/Lab Testing 3. Delivery Procedures 4. Health System Processes	1. Women's Health 2. Health System Factors 3. Health System Factors 4. Health System Factors
Price of Health Services	1. Cost of Medications & Health Svcs 2. Personal Finances/Prioritizing	1. Health System Factors 2. Women's Health-Financial
Perceived Pregnancy Course	1. Women's Health 2. Fetal Health	1. Women's Health 2. Fetal Health
Evaluated Pregnancy Course	1. Diagnostic/Lab Testing 2. Prenatal Care Appointments 3. Hospital Delivery	1. Health System Factors 2. Health System Factors 3. Health System Factors
Social Support	1. Self Reliance 2. Familial Support 3. Provider Rapport 4. Societal Factors	1. Women's Health-emotional 2. Social Support 3. Patient Provider Relations 4. Social Support
Social Norms r/t Health and Illness	1. Comp. & Alt. Therapies 2. Spiritual Norms	1. Women's health-Physical 2. Women's Health-Spiritual

Preliminary categories, within each of the codes, were determined by labeling clusters based on the overarching theme. Preliminary category labels were then evaluated for similarities and, where redundant, combined to form the following emergent categories:

1. Women's Health-Physical, Financial, Emotional, and Spiritual
2. Child's Health-Fetal and Newborn
3. Patient Provider Relationships

4. Factors pertaining to Health System Structure, Function, and Processes
5. Social/Societal Support

Category 1: Women's Health

This category was comprised of data clusters from Code 1: Values Concerning Health and Illness; Code 3: Knowledge of Pregnancy; Code 4: Price of Health Services; Code 5: Perceived Pregnancy Course; Code 7: Social Support; and, Code 8: Social Norms related to Health and Illness. As previously presented, topics pertaining to women's health included holistic aspects of well-being; women's perceptions of their own health including signs and symptoms during pregnancy; prenatal care and healthy behaviors; prioritizing personal finances to meet financial needs during pregnancy; self-reliance in relation to life-stress and health; complementary and alternative therapies; and, spiritual beliefs and practices during pregnancy and postpartum.

Category 2: Child's Health

The Child Health category was comprised of data clusters from Code1: Values Concerning Health and Illness and Code 5: Perceived Pregnancy Course. Topics pertaining to child health included the women's concerns over the health of the fetus; ensuring that she carried a happy/satisfied fetus; and women's concerns about newborn health.

Category 3: Patient Provider Relationships

This category encompassed clusters of data from several codes including the following: Code 1: Values Concerning Health and Illness; Code 2: Attitudes towards Health Services; and Code 7: Social Support. Topics included within this category pertained to the importance of personal privacy and confidentiality of medical information; personal accounts of experiences

with various providers; women's perceptions of nurse vs. physician roles and scope of practice; and the role of provider rapport in utilization of services.

Category 4: Health System Structure, Function, and Processes

Category four was comprised of data clusters from multiple codes including: Code 2: Attitudes towards Health Services; Code 3: Knowledge of Pregnancy; Code 4: Price of Health Services; and, Code 6: Evaluated Pregnancy Course. This category incorporated clusters of strips that pertained to personal accounts of experiences with the health system; laboratory and diagnostic testing at health centers and hospitals; obtaining prenatal care appointments; costs of medications and prenatal care services; pre-registration (booking-up) procedures; and delivery at the hospital.

Category 5: Social/Societal Support

The final category encompassed clusters of data from Code 7: Social Support. Strips pertaining to discussions about familial support during pregnancy; support, or lack thereof, from significant others; governmental financial support and maternity benefits; and, employer support during pregnancy were included in this category.

Interviews with Providers

Interviews with medical professionals were conducted to better understand the health system, policies, and provider perspectives of prenatal care utilization in St. Kitts and Nevis. Because pregnant/postpartum women were the unit of analysis for this study, provider interview data was analyzed and coded based on a-priori knowledge of what was contained in the pregnant/postpartum women's interviews. This was to ensure that provider data was analyzed based on how their perspectives correspond with the perspectives of pregnant/postpartum

women. The following codes represent transcript data from interviews with nurses and physicians.

Code 1: Values Concerning Health and Illness

Please refer to Code 1 under Aim 1: Interviews with Pregnant and Postpartum women for the definition of *Values Concerning Health and Illness*. Strips pertaining to what providers believe to be valuable in providing medical care to pregnant and postpartum women were included under this code.

There were a total of 10 strips under Code 1: Values Concerning Health and Illness, as they related to pregnancy. These 10 strips were evaluated for similarities and grouped into seven sub-codes. The seven sub-codes were then clustered, again based on similarities, with the most common sub-codes pertaining to the value of general preventative care and early prenatal care, the value of breastfeeding, and value of an effective health system. Strips containing discussions about what providers deemed important, or of relative worth were included under this code.

As evidenced by what providers discussed during the interviews, general health maintenance prior to pregnancy as well as early, consistent prenatal care were highly valued. General health maintenance is herein defined by the provider's discussions of the perceived lack of attention that some women place on their well being prior to pregnancy. This was evidenced by sub-codes pertaining to women's lack of knowledge about their family history and the potential effects on their own health, and the perceived lack of value that women placed on disease prevention. Evidence of the value that providers placed on general health maintenance is elucidated in the following quote, from a physician who described a situation he often encounters, where women lack knowledge about genetic or familial conditions:

> *When you ask them what kind of diseases run in your family? Oh I think mama has hypertension and diabetes. What have you done? You've heard all the campaigning and so on, what have you done to check to see if you have that same thing? Oh I did a blood sugar test of ten years ago, you know, that kind of stuff. They really haven't either made the connect. If I have a family history of X, Y, and Z, I really should be paying closer attention. Of course I would help prevent all these complications during pregnancy.*

This is an example of one provider's values concerning health and illness, in that this participant believed that complications of pregnancy could be avoided if women were more knowledgeable about their own family histories. This participant valued patient knowledge in that it could potentially assist with health care decision-making, prevention of co-morbidities, and treatment. Another strip that provides evidence of the value providers place on preventative care is elucidated in the following quote, from a participant who discussed the issue that pregnancy may be the first encounter that a woman has with the health care system:

> *I: Right, so what I hear you saying I think is that some women will not care for their health and not visit the centers or the physicians until they're pregnant and then they will go. P: Yes, yes Because of their pregnancy. It's highly prevalent, highly prevalent. The idea of oh I'm going to have a yearly checkup. That idea is not widespread. Most people don't look at it as something that they're doing for themselves. All right, such as going to shop for a pair of shoes, you know? Instead of doing that they want to go out and get a checkup and see how their blood sugar is.*

This provider believed that preventative care and annual visits were not of value for women. Instead, this provider's perspective is that women tended to wait until they were pregnant to visit a health center. Again, though this provider places importance on the value on preventative health in preventing maternal comorbidities, s/he feels that, for women, there is a disconnect between general health and pregnancy health.

Providers also placed a high level of importance on women receiving early prenatal care and education. The following quote, from a participant who describes the issue of late attendance

at prenatal care services and the resultant lack of knowledge regarding breastfeeding, evidences this:

> *Ah, well they attend very late. Especially * they attend late. We try to get them as early as possible. We have documentation for before twelve weeks- twelve to twenty weeks, and after twenty weeks- sometime before we had them being documented at sixteen weeks, but now we're even below sixteen weeks- twelve weeks. And we find that when they don't attend that early, they would have lost some of the educational sessions. They don't know what to do. You find that those are the mothers who don't adhere to breast-feeding practices. They are the ones who would have baby, they have the baby, and they may try to breast-feed, but because the breast swell up. Prior to delivery, they may have cracked nipples, they may get bored in breast-feeding because they don't know that they are supposed to make sure the entire areola is goes into the baby's mouth. And things like that you will find.*

This provider discussed that in years past, the health system had a process by which women were to have a first prenatal visit at 16 weeks gestation. However, more recently that has changed to include a first prenatal visit at 12 weeks, followed by one visit between 12 and 20 weeks gestation, and then multiple visits there after. S/he explained that, when a pregnant woman misses the first prenatal care visit at 12 weeks, she misses some of the educational sessions. The lost opportunity for education results in post-delivery complications with breastfeeding. This provider valued early prenatal care for the educational benefits provided to the mother, as well as the early preparation for delivery. This also provides evidence of the value of breastfeeding in St. Kitts and Nevis.

Providers placed a high level of importance on breastfeeding, as opposed to bottle and/or formula feeding, infants. Several providers discussed breastfeeding in terms of early, consistent education and follow-up necessary to achieve breastfeeding success through the first six months of infancy. When asked what challenges nurses face in the delivery of care to pregnant women, one provider discussed the issues she faced with helping women to maintain exclusive breastfeeding after discharge from the hospital. The following quote illuminates this:

> *P: The only challenge I would say is our...Breast-feeding. That I think is one of the biggest challenges. We teach it, we demonstrate it, but on average when a women leaves hospital, there is no guarantee that she will exclusively breast feed as for the required six months. Many of them have the formula at home waiting. I: Okay, they've already decided they weren't going to breast-feed? P:No, they are going to breast-feed. But they breast feed as they see fit. So they mix it, they mix the formula and the breast-feeding from very early.*

This provider placed high importance on exclusive breastfeeding for six months postpartum. Though she did not expound upon why she felt this way, the assumption is that as a provider she has been educated on the health benefits of breastfeeding for mothers and infants. Her perspective was that the most important challenge she faced, as a nurse, was assuring breastfeeding success. Providers also discussed their perspectives that one way that the challenge of consistent, successful breastfeeding could be addressed was through the formation of a committed team of experts that would serve as a breastfeeding taskforce. Per some of the provider participants, this task force would need to be comprehensive enough to address breastfeeding education and issues during the prenatal, hospital delivery, and postpartum periods. When asked what was needed to improve breastfeeding success rates for women in St. Kitts and Nevis, one provider responded in the following way:

> *A team that is committed. Cuz I think it starts with a committed team to push breast-feeding before you can get people to buy into it. And you need help, you need to have enough because when these mothers go home, they might seems like they mastered breast feeding in the hospital, but when they go home and meet domestic challenges. The grandmother, * no breast feed, or breast-feeding. Give the child the bottle. So, the old time and grandmother influence and such would also play a part in how much breast-feeding will be done. You must have a supportive and maintenance group. You don't just teach them breastfeeding and leave them.*

This strip reinforces the value that providers placed on educating and assisting mothers to achieve successful, exclusive breastfeeding during the first six months postpartum. It also is

evident that this provider valued collaboration and team efforts in achieving success for breastfeeding mothers.

Finally, providers placed high importance on an effective and efficient health care system that supports their efforts to provide high-quality care. This is evidenced by providers' discussions about physician collaboration, certain system processes, and ensuring patient confidentiality. The following quote from one participant provides evidence of the importance of provider collaboration in the provision of prenatal care. This participant discussed changes in the health care system that resulted in improved outcomes for pregnant women and their infants:

> *Well I've been here for ten years and when I came in I found the system, which wasn't formalized between the physicians working in the private sector and those in public sector. I took it upon myself to try and get the collaboration going because we just wanna make sure that we don't have high incidences of respiratory distress for whatever reason, abruption because of preeclampsia. Even perinatal death because of all these issues, fortunately it's worked and we're seeing ever less numbers of this situation.*

This strip provides evidence of the value that providers place on effective collaboration and efficient health systems. Due to improvements in collaboration, this provider felt that surveillance of maternal co-morbidities had improved, which contributed to reduced rates of maternal mortality.

Another topic of importance for providers pertained to the benefits of the system process of pre-registration prior to delivery. As previously discussed, women are encouraged to attend a registration and education session with hospital nurses during their final month of gestation. The "booking-up" process provides an opportunity to answer questions for the mother, educate them about delivery procedures and postpartum care, and obtain a second set of blood laboratory studies for sexually transmitted infection surveillance. For providers, the value of this registration process is evidenced in the following quote, from a hospital nurse who discussed resultant issues when women did not consistently attend prenatal care services:

> *Or they may end up going to the hospital un-booked. And that is a problem because they will not have had their blood work done. The nurse, they will not know what level of hemoglobin they have. That second VDRL may not have been done and that's a problem.*

The lost opportunity for patient education resulted in the inconvenience of obtaining blood laboratory tests at the time of delivery, as opposed to during the pre-hospitalization registration process. Finally, providers placed importance on maintaining confidentiality of medical information for their patients. This is evidenced by one participant's discussion of the perceived, or actual, issue of confidentiality breeches when obtaining care in the community setting:

> *P: Yep, and so there is potentially a perceived risk of breach of confidentiality when going to the community center as opposed to—Yes, it seems to be a cultural issue. I: Then it may be a real issue, not just a perceived issue? P: Exactly, so they have people who are really—well they haven't documented it in writing but they will tell you verbally. For example, they were at a particular place and were being attended to. Even before they reached home the same day somebody else calls them to tell them why didn't you tell me you were pregnant?*

This participant was discussing what s/he felt was the main difference between obtaining care at a private physician's office versus at the community health center. This provider, who was employed in both the private and public health sectors, had first-hand knowledge of perceived differences between the two settings. S/he believed that one of the major values in obtaining private care was the confidentiality and patient privacy that could be maintained in that setting, as opposed to the community setting.

There were 10 strips within Code 1: Values Concerning Health and Illness, which clustered into seven sub-codes. Providers placed high value on preventative care and early prenatal care; breastfeeding support and education; and, collaboration, effective processes, and patient confidentiality.

Code 2: Attitudes Towards Health Services

Please refer to Code 2 under Aim 1 for the definition of *Attitudes Towards Health* Services. Strips containing information about what providers perceive to be women's attitudes towards health services personnel, health facilities, health services, and the health system in general, as per the aforementioned definition, were included under this code.

There were 38 strips under Code 2: Attitudes towards Health Services. These 38 codes were evaluated for similarities and condensed into 30 sub-codes. The 30 sub-codes were then further condensed into clusters representing the most common sub-codes pertaining to attitudes towards health services. The three clusters of data pertained to provider's perceptions of pregnant and postpartum women; provider's perceptions of women's attitudes towards the health system; and provider's perceptions of women's attitudes towards providers.

Evidence of provider's perceptions of pregnant women was elucidated in strips pertaining to infrequent preventative care; late or minimal prenatal care; teen pregnancy; and, popular culture influences on maternal behaviors. These clusters represent what providers believed to be women's attitudes towards health and health services. The following quote, from a participant who described the perceived lack of attention that women pay to their general health prior to pregnancy, provides evidence of one perception of pregnant women:

> *I: Health education is key? That's what I've heard over and over again here. P: Absolutely because I mean as a physician no matter how complex your level is, you have to recognize once you have a healthy body then disease fall away. It's important especially for a low resource setting as this is. All right? It costs us tens of thousands of dollars just to treat somebody who has a complication either during pregnancy or even in non-pregnant population. All that could have been avoided if the person had just taken a little bit more care in testing frequently. Knowing that they have genetic predisposition and that would have saved themselves the anguish and of course saved their pockets as well.*

This provider asserted that women hold negative attitudes towards consistent health promotion and disease prevention. The lack of attention paid to general health prior to pregnancy leads to complications during pregnancy that could have been avoided with frequent testing. Also underlying this statement is the belief that, though health education is important, education without action is ineffective in disease prevention and cost containment. Another prevalent belief about women's health attitudes focused on obtaining late and/or minimal prenatal care. Although providers acknowledged that it was rare for a woman to receive *no* prenatal care, late or infrequent prenatal care was a major issue. This is evidenced in the following strip from one provider who discussed the phenomenon that multigravida mothers often wait until late in the pregnancy to obtain prenatal care:

> *So they wait and come till late. And so we're saying for those who know how it go, yes, maybe you wouldn't want to spend your money every month to go the doctor. But utilize the health center so that if there is something going on this time- because no two is alike- that at least it is identified early. But those numbers of persons not attending care until they are reaching here for delivery is basically almost non-existent. Um, if you were to do a study probably to see how much antenatal care some women get, it's minimal.*

The provider emphasized that for mothers who have experience with pregnancy, the relative worth of paying money for a visit may not very high. However, the women had the option of obtaining free care at the community health centers for pregnancy surveillance, and still chose not to utilize the services. This provider's statement called into question maternal behavioral intent. S/he perceived the attitudes of certain mother's to be one of self-sufficiency and inattention to potential issues during pregnancy. Another strip provides further evidence of this belief about maternal attitudes. In the following quote, the provider also discusses prevalent attitudes of multigravida women, particularly those of advanced maternal age:

> *Especially the older ladies who obviously have had several children, no complications, they did most things on their own. They decide well I'm not gonna be bothered. I know*

> *I'm pregnant, nothing is wrong, apparently wrong and they decide to continue. Of course our main concern is always the pre-existing diseases because hypertension is so prevalent, diabetes is prevalent and many times they'll go undetected until they're diagnosed at the antenatal check-ups.*

This provider asserted that older women, who have had previous pregnancies, are typically those who fail to seek early, consistent prenatal care. Due to advanced age and pre-existing conditions, these women are particularly vulnerable to pregnancy-related comorbidities. This provider's perception is that the intersection between older pregnant women, pre-existing conditions, and the lack of prenatal care can lead to poor maternal-child outcomes.

On the other hand, providers also discussed the topic of increases in teen pregnancy, and their perceptions of why many teenage mothers do not seek prenatal care with consistency. The following strip evidences this, where one participant described the issue of teen pregnancy, both historically and currently:

> *We do have a high teenage pregnancy rate. That is, what would you call it? Age old. It's not a new problem. As in statistically since from way back when, we've been pretty high on the list in the Caribbean for teenage pregnancy. Jamaica has been number one, and we have been number two.*

Providers are aware of the increasing prevalence of teen pregnancy. Another strip that supports this data is presented below; where one participant discusses the lack of attention some pregnant teens pay to obtaining prenatal care services:

> *P: It's the older ladies that may not be coming to the clinic, the same population that will likely be at risk for diabetes and hypertension. I: That then maybe will show up to deliver and have these conditions? P: Yes, although you do have a newer choice in the recent past where the pregnant teenagers now falling into that. They have access to totally cost free, basic antenatal care and they don't access it. It's not for lack of information, all right? The information is out there. Health promotion services are out there giving the information to them. It's hard to say why, but those are the prevailing attitudes you could say that I've seen amongst those two sets of population.*

The increases in teen pregnancies, coupled with the young population (~46% are 25 years or younger), requires an increasing provider focus on the behaviors and needs of a younger

population. This provider perceives teen attitudes towards health care services to be less than optimal, even with active, readily available health promotion services. This, again, calls into question the issue of behavioral intent.

Finally, providers perceived that women were highly influenced by popular culture and television. Aside from one station with local programming, a majority of television programming viewed in St. Kitts and Nevis comes from the United States. Providers expressed concerns about women who watch television programming about health services in the United States, and have expectations of similar options and services locally. This is evidenced by the following quote from a participant who described encounters with patients who expected certain services that were unavailable:

> *For example they would say, well this woman had this situation and she was rolled into theater within minutes of the diagnosis and etcetera, etcetera. Why can't that happen here? They forget the fact that these are low resource setting. Don't have the money nor the need to employ so many people. For example, you're gonna employ three gynecologists in a small place like this for example so that you have somebody to respond. You're gonna need ambulances more than what you have right now. You're gonna need more nurses, more than what you have right now A lot of people lose sight of the fact that what they're seeing is in a highly developed country. Who's developed their system to that point over the years. Essentially complain that we could've gotten that same care or in this particular situation the woman got X, Y, and Z care so why can't I get that?*

This provider perceived women to have the attitude that services available to them were inadequate, inefficient, or of poor quality. The provider felt that women failed to recognize the limitations in resources, especially personnel, and development of the country necessary to provide the type of care that they see on television. Underlying this statement is the aforementioned issue of women's reluctance to obtain preventative care. The lack of preventative care, coupled with expectations of high level tertiary care further calls into question

women's understanding of the need for antenatal health promotion, particularly in a country where the provision of health services focuses on prevention.

Providers also discussed their perceptions about women's attitudes towards health services and the health system. Evidence of these perceptions was obtained through discussions about resources and equipment availability; quality of care; and, public versus private sector services. One provider participant cited equipment availability as an area of improvement for the health system:

> *I would definitely like to see an increase in availability of equipment, fetal monitors and things of that nature at the community health centers. All right, that would take the burden off the public hospital, which takes the bulk of many essentially low level prenatal care that doesn't really need to come to the hospital. If that were available at the health centers, that would make things a lot easier. In terms of everything else lab facilities, they're pretty good. They're pretty good. At least for the basics because the wonderful thing about obstetrics is that you don't need too many complicated stuff. Right?*

Though this participant does not directly relate the lack of equipment at community health centers to patient satisfaction, health system resources are cited in the prevailing model (Anderson & Newman, 1973) as having an impact on individual determinants of utilization.

Evidence of provider perceptions of women's attitudes about resources and equipment availability related to quality of care is further elucidated in the following strip, from one provider who discussed the public health infrastructure when asked if health system changes were needed:

> *Well number one because the infrastructure and equipment available are rudimentary. One of the pushes that we're trying to get is to have all the institutions whether public or private; especially the public because that's where most people will gravitate to if equipment is available, if the quality of service is on par with the private sector.*

Underlying this provider's statement about equipment availability is the notion that patients have a preference for high-technology care. This preference affects their attitudes towards health services where equipment and resources are limited. The provider went on to suggest that

improvements in equipment will lead to increased quality of care and better utilization of public health services.

A third cluster of data within providers discussions pertained to public perceptions of private versus public sector healthcare. Documentation of this perception is provided in the following strip, from a participant who described common misconceptions about choosing a midwife versus physician-attended delivery:

> *Yeah, not only that too, but it seems as though even because other people will- even though you are allowing us to deliver you, you might think you don't need an OB-GYN. But they need an obstetrician to be assigned- to obstetrician- because if anything goes wrong out of the norm, they are already assigned with an obstetrician.*

Within this conversation, the provider also discussed the issue s/he perceived with women paying fees for the reassurance of having a private physician available during the delivery. S/he went on to clarify that even in the instance of a midwife-attended delivery, a public sector physician is always assigned to the case in the event that one is needed. The previously discussed quotes provide evidence that providers perceive women to have misconceptions about health system structure and available services.

Finally, participants discussed their perceptions of women's attitudes towards health care providers. Topics of discussion included perceptions about physician versus nurse centered perinatal care, and about nursing education and scope of practice. Indication of perceptions about physician versus nurse centered perinatal care is documented in the following strip, where the participant described what she believed to be a common scenario during hospital delivery:

> *I: What's the difference between the nurses delivering and the obstetrician delivering? Are there any? P: Not much difference, but the difference is the nurse do everything and the obstetrician come in time to get the baby. But then they go and pay the obstetrician because they feel, well if something go wrong at least the doctor is there. But the thing about it is that, what can go wrong with the doctor is the same thing can go wrong with the nurse.*

Underlying this statement is the provider's belief that the public maintains unfavorable perceptions of the quality of nursing care. In this provider's opinion, nurses are capable of conducting safe deliveries with good outcomes, but s/he feels that the public is misinformed on the subject. S/he perceives a disconnect between the true sequence of delivery events, and the public's perception of what occurs. Per this participant, nurses do not receive due credit for their involvement in deliveries.

Providers believed women's perceptions of nursing education and scope of practice was also unfavorable. The following quote, from a participant who described nursing education and scope of practice, substantiates this:

> *I: So the nurses here are able to do basically from the beginning, all the way through delivery at the hospital? P: When you say the beginning, as to? I: Beginning of the pregnancy. When they first become pregnant. P: No. We are capable, but we don't normally, unless they are high risk. If they come to the hospital as a patient. High-risk pregnancies are managed in the community and by the private physicians. But if they require hospitalization, here is where they will come. But as she said, we have knowledge of what to advise them. Even from day one of being pregnant, cuz we are trained midwives to cater for them from the time of conception.*

Just prior to this statement, the nurse discussed the idea that the public was largely unaware of the amount of education and training required to be a registered nurse and midwife in St. Kitts and Nevis. S/he went on to suggest that the reason, in part, for service underutilization at community health centers may be the public misconception of nurses education and scope of practice.

There were 38 strips under Code 2: Attitudes towards Health Services that condensed into 30 sub-codes. The 30 sub-codes were then further condensed into clusters representing the most common sub-codes pertaining to attitudes towards health services, including provider's perceptions of pregnant and postpartum women; provider's perceptions of women's attitudes towards the health system; and provider's perceptions of women's attitudes towards providers.

Code 3: Knowledge About Pregnancy

Please refer to Code 3 under Aim 1 for a definition of *Knowledge about Pregnancy*. Strips from provider interviews that substantiate or contradict women's statements about pregnancy knowledge were included under this code.

There were 34 strips under Code: 3 Knowledge of Pregnancy. These strips were analyzed for similarities and subsequently reduced into 19 sub-codes. The 19 sub-codes were then evaluated for similarities and grouped into clusters pertaining to two main subject areas. The clusters included provider perspectives about how and where pregnant women obtained knowledge about pregnancy, and women's perceptions of need for care.

Within the cluster of how knowledge was obtained, providers believed that women obtained education from four sources: community health centers, the private physician's office, hospitals, and internet and television. Evidence that providers believe women obtained pregnancy knowledge from the community health centers is elucidated in the following strip, from one participant who provided a detailed description of what is discussed during prenatal care appointments at community health centers:

> *Okay, the education varies, but at any antenatal clinic we do diet. We discuss what they should eat, what they should not eat. And course we tell them you should not drink alcohol. You should make sure that your diet include all of the food groups, and we also discuss what they get from each food. Example, your fruits you get vitamins- particularly vitamin C. From the yellows, that would be the carrots and the pumpkin, you get vitamin A. And food from animal you get protein. You know, you explain exactly what you get, what nutrients you get from the food groups and how they act. So um, what should I say...we emphasize iron rich foods so that they will understand at some point in time they will be losing blood during delivery- whether its a caesarean section or a normal vaginal delivery. And at this point in time you need to increase or improve your hemoglobin if its low. So we encourage liver, we encourage antenatals to eat liver, and dark green vegetables and they also get supplements of iron. Okay, we educate on the, the care of the breast and the nipples. Cuz let's say there is a mother who has inverted nipples, you will encourage her, we will actually do it on her- pull out the nipples and roll them between*

*the thumb and the fore finger. And that is to toughen the nipple in preparation for breast feeding. And you also encourage them, or show them the dark area- which is the areola- encourage them to make sure that the baby's mouth covers the areola when sucking. Cuz if this doesn't happen, then the mother will end up with sore or cracked nipples. Well, if there are hemorrhoids they'll be educated on high fiber foods, so they will really get frequent bowel motions. So we encourage to eat oats, dark leafy vegetables and, you know make sure that they have, their diet has enough fiber. And I've spoken about the fruit...all of the food groups which I said before. So they really get, the education they get is really a tailored...its tailored to their needs specifically? Some, well...um, there are times....its general, its general. Because all antenatals would just have to get a general, you know, feel of what they need to get because we also discuss the * with them. That's what they need when the baby is born. Especially for first time. We also discuss labor with them. And we also discuss um, the different stages in pregnancy where you would start feeling a little more heavy. Because after * takes place and the presenting part falls low into the pelvis, um, things like this we discuss with them. And we also discuss the Braxton hicks contraction because some mothers they do get all worked up. But we, you know, try to let them know that these contractions are normal. They are not painful, but just a little discomfort. Because sometimes they would feel like, well they are going into labor.*

This participant's discussion about general and tailored education provided over the course of a woman's pregnancy provides evidence that health education is available at community health centers. Underlying this statement is that women who choose to use free prenatal care services in the community will receive thorough education about pregnancy.

Regarding the private physician's office, in relation to health education and knowledge, providers corroborated women's perceptions that little education is received at these locations. This is evidenced by the following quote from one participant who discussed the lack of nursing presence at the physician's office and the lack of time available for physicians to fully educate their patients:

P: And so that is one of the things that you would recognize is- because many don't access- the numbers you who want to access the community for that education because they don't get that extensive education with the doctor. I: Oh they don't? P: Not the extensive education. They don't have the time. Like a nurse.. And so sometimes when we're at delivery some of what we're sharing with them, or when they come to book, it's

> *like they never heard it cuz they've not gone to the health center. And that is no time to be teaching anybody.*

As per this provider's perception, community health center care is critical in obtaining pregnancy related education since the education is largely unavailable at private offices. The absence of nurses within the private setting, per this provider's perception, contributes to the lack of knowledge that some women have.

Another provider's statement about the process of registration, or booking up, supports the aforementioned evidence that patients receive education from hospital nurses as well:

> *But we've sort of eliminated that. They will still get their paper to * by delivery or not, *. But we advise from the community that they can go and book up at any time, without the paper. You collect your paper at your leisure after that. So what them do now is to call the outpatients department because that's where its done, and they would give them an appointment on when to come in, based on the expected. We still have some um; it has caught on generally, all the health centers are advising. But not everybody uses the health centers, so you still have the one or two who will be late. But even of those who know and were sent, sometimes they date that they give them- because the baby comes when they are ready. Sometimes they end up going into labor before they, the date that they have for their appointment. So you still have one or two... But they numbers have gone down. The numbers have gone down considerably.*

This statement provides evidence that changes in the process of prenatal care and delivery, through instituting a pre-delivery registration process, have decreased the prevalence of unattended home births in St. Kitts and Nevis. Through this process, women receive education about signs and symptoms of impending delivery to avoid inadvertent home deliveries.

Finally, providers felt that women received certain types of information via television or the internet that influenced their desires for certain experiences during pregnancy. This is evidenced in the following quote, from a participant who described internet and television education and women's desires for high technology care. When asked if there was anything s/he

would like to add to our discussion about how women obtain knowledge during pregnancy, one provider responded:

> *Well nothing much more. Well apart from the fact that—well you could say probably in the past ten to 15 years people have been getting more access to information either through the internet or cable TV. They have the notion that what they're seeing or TV or what they've read on the internet should be made available to them.*

In this case, women's understanding of pregnancy related topics are partially based on television streamed from the United States. Not only can pregnancy-related conditions (e.g. certain genetic abnormalities, prevalence of chronic or infectious disease) differ between St. Kitts and Nevis and the United States, health system structure and the availability of resources to treat these conditions vary as well.

The final cluster under Code 3: Knowledge of Pregnancy pertained to provider's perceptions that pregnant women don't always understand the need for medical attention. Within this cluster were topics pertaining perceptions of need influencing decisions, the lack of knowledge regarding blood banking, and work commitments overshadowing the need for medical care. When asked about perceived barriers to providing care to pregnant women, one provider asserted the following:

> *The only barrier I would see is just the woman's understanding of the need for medical attention. A lot of people still have the concept that well they're doing quite good. They did very good with the previous pregnancy so they don't see the need of seeing a nurse nor a doctor. They do show up here pretty late or sometimes in labor itself. In terms of on the health services side, in terms of something that might slow down people from accessing that services, no. On the contrary, we are constantly educating, campaigning that you should use the services as much as you can.*

Underlying this perception is the notion that knowledge does not equate to action. This provider's statements suggest that, even with constant education and promotion of health

services, patients may still choose not to access these services. This calls into question pregnant women's behavioral intent, health beliefs, and perceptions of care

Code 4: Price of Health Services

Please refer to Code 4 under Aim 1 for a definition of *Price of Health Services.* There were nine strips under Code 4: Price of Health Services. These nine strips were evaluated for similarities and subsequently combined into six sub-codes. The six sub-codes were further condensed, based on similarities, into clusters pertaining to individual financial concerns, physician fees, and the government and health system. The first cluster within the code of Price of Health Services pertained to women's personal finances including the expense of choosing a private physician versus a midwife, and obtaining private health insurance. The following quote, from one participant who explained the difference between a midwife-attended and a physician-attended delivery:

> *Its an economic situation where the type of delivery done. And that is the woman's choice. If she wants the doctor to deliver her, she pays him her money, and she comes and has a private delivery. He will do the delivery. But those who would not have a problem with the nurses delivering, they would just come book up, come in when they're in labor and have the midwives deliver. But as she said, whether you are private or non-private, every patient has a OB-GYN. Every one of them. Whether economical issues or not.*

This statement evidences the impact that financial concerns have on women's decision about obtain private versus public medical care. However, per this provider women seem to misunderstand that payment for services is not required in order to be attended by an obstetrician. And additional personal finance issue, cited by providers, is the lack of health insurance available in St. Kitts and Nevis and women's limited understanding of the need for such coverage:

> *Then another big problem that we have in St. Kitts is the lack of health insurance. There's private health insurance but there's not public or national health insurance that would pick up the tab on many of these things. Then private health insurance being available, not a whole lot of people have it, all right? Because many times of course a lot of people have this concept of private insurance or even if it were public. The fact that they're paying into insurance and they don't seem to get anything out of it. All right? Many who started simply don't continue and they stop paying insurance a long time ago. When you explain to them the fact that, look this bill would have been taken care of even partially by the insurance, they're [upset] you know?*

This is another statement that supports the evidence that financial concerns for women, despite the availability of free care, impact healthcare decisions during pregnancy. Underlying this is the reality that, even with a straight forward low-risk pregnancy, complications can occur at any time. Many women who require frequent hospitalizations or unplanned C-sections do not financially plan for such events. Per this provider, having medical insurance could potentially curtail the financial burden.

The second cluster under this code pertained to physician fees in the private healthcare sector. Nurses commented on their perception that the physician is paid directly for their services, while the nurses attended a great deal of the delivery. Nurses believed that patients tended to pay for the assurance of good care. This is evidenced by the following quote from a nurse who expressed her concerns about the following scenario:

> *Something I never did like is that you monitor the patient right down until the head is crowning. And the doctor comes catch the thing... And hand it to you...(laughs). The money is only in his pockets; he's not sharing it with you going through the labor pains, having her scratch you up as the pains come. Ripping off your clothes, he just...But then they go and pay the obstetrician because they feel, well if something go wrong at least the doctor is there. But the thing about it is that, what can go wrong with the doctor is the same thing can go wrong with the nurse.*

This nurse's perception is that physician involvement in deliveries is often limited to the moments just prior to and after the birth. Women, who pay fees to ensure that a physician is present do not recognize that the nurse is the sole attendant for most of the delivery, regardless of

whether a private physician was hired. Additionally, the participant perceived that delivery complications were not the direct result of the type of provider in attendance, but rather inherent conditions within the pregnancy that would occur despite the type of provider.

Providers also discussed government support, via taxpayer dollars, for certain conditions and treatments that women were unable to afford. Additionally the government ensures the availability of a physician regardless of the site for care (public and private). These statements were evidenced by the following quote in which one provider described the potential scenario that a patient could not afford treatment:

> *Somebody pays for it. All right, and number two, what level of care do they give to you and things like that. It's hard to educate persons on that aspect. In this part most people eventually turn to the government for help and then it's tax payers who have to pay all of it. Help for the treatment. Or the situation, sometimes we need to transfer them out of the country. I mean the air ambulance transportation alone is expensive. Then people cannot afford it. Not to talk of hospitalization and all the rest. Rather than see them wither away here, oftentimes the government checks in but that comes out of taxpayer's money. Is that preferable or do we prefer a system even with basic health education where we can prevent all of these things?*

There were nine strips under Code 4: Price of Health Services. These nine strips were evaluated for similarities and subsequently combined into six sub-codes. The six sub-codes were further condensed, based on similarities, into clusters pertaining to individual financial concerns, physician fees, and the government and health system.

Code 5: Perceived Pregnancy Course

Please refer to Code 5 under Aim 1: Interviews with Pregnant and Postpartum women for a definition of *Perceived Pregnancy Course.* Strips pertaining to provider perspectives on women's perceptions of pregnancy are included under this code.

There were five strips under Code 5: Perceived Pregnancy Course, representing the code with the least amount of provider data. These five strips were evaluated for commonalities and were found to all cluster into the topic of maternal perceptions of the necessity for care. The following strip provides evidence about provider's opinions on maternal perceptions of the need for medical attention during pregnancy. This participant described the common phenomenon of older pregnant women perceiving less of a need for medical evaluation when they have previously experienced a healthy pregnancy:

> *Especially the older ladies who obviously have had several children, no complications, they did most things on their own. They decide well I'm not gonna be bothered. I know I'm pregnant, nothing is wrong, apparently wrong and they decide to continue. Of course our main concern is always the pre-existing diseases because hypertension is so prevalent, diabetes is prevalent and many times they'll go undetected until— They're diagnosed during the antenatal checks as well. We try to encourage that, at least they should go as soon as they find out they're pregnant. Then they work up the rest as they go along.*

Perceptions of limited need for services directly affect a woman's intent to use those services. This provider suggested that older women, who are multigravid, tend to avoid prenatal care services based on previous healthy delivery experiences. With chronic disease prevalence increasing, older mothers are at increasingly high risk of developing complications of pregnancy. This provider statement suggests that some women's perception of need are counter-productive to health promotion and disease prevention. Another indication of women's inaccurate perceptions about their pregnancies is elucidated in the following quote, from a participant who explained women's misunderstanding about the need for banking blood prior to delivery:

> *Well you know you're saying that it's, if its difficult for them to get blood when they go to the delivery. Is the challenge for you as a nurse beforehand getting them to be able to donate the blood? Or is it after they've delivered and now you're seeing that they have complications from not having blood? After. After they delivered.*

This statement underscores the importance of women understanding the need to follow provider recommendations. Women who are categorized as high-risk, or have a planned C-section, are encouraged to have family members donate blood prior to the delivery. Women who perceive a healthy pregnancy course, despite provider recommendations, may fail to complete this task. Providers believed that women's perceptions of the need for care were limited, which could have led to complications.

Code 6: Evaluated Pregnancy Course

Please refer to Code 6 under Aim 1 for a definition of *Evaluated Pregnancy Course*. Strips containing provider's discussions of medical evaluations during pregnancy were included under this code.

There were 35 strips under Code 6: Evaluated Pregnancy Course, representing 18 sub-codes. The 18 sub-codes were evaluated for commonalities and clustered into three topics pertaining to prenatal evaluations, evaluations during delivery, and postpartum evaluations as per the perspective of providers. Evaluated pregnancy course is herein defined by provider's discussions including diagnostic testing and evaluations, nursing role during deliveries, and conditions affecting infants in the postpartum period. The following strip provides documentation of a physician's role during prenatal care appointments:

> *Well our role as a care provider is for pregnant women. It falls basically in providing basic medical care, health care, for these ladies. Because as you would understand having a small population that is the foundation of good health is the availability of basic health services. For the pregnant women we want to make sure that their antenatal care is adequate. That we screen for the more common pathologies that are found here in the country and also to group the ladies in their respective risk categories for the pregnancy. We do basic screening for blood sugar, all right? We would screen for sometimes depending on the history, the personal family history we may screen for function of different systems in the body. Such as the liver function, kidney function. Additionally, the following quote provides documentation of the community nurse's role in providing*

> *antenatal care in the community clinics. Of course the routine BP checks, blood pressure checks and that is done. If we see anything out of the ordinary, we may repeat those tests as often as is needed until we get a conclusive answer. That has helped and for a lot of women who had preexisting hypertension for example or diabetes, oftentimes that means changing their treatment to suit the pregnancy.*

Nurses also described their role in providing care to women in the community health centers:

> *We do, antenatal clinic on a two weekly basis. Clients are asked to attend more often based on the findings. If its high risk, then they'll be ask to attend on a weekly basis. Or they may be referred to their doctor. From the first visit, the client gets a complete physical examination. And that includes from the head to the feet. We check the teeth, the mouth on the whole, we look at the eyes. We also check the lymph nodes, we check the breast- in terms of looking at the areola. And accordingly we check the, we can see- we look at the nipples as well to see whether they are inverted. We look at the abdomen to check the muscle tone, to see how it lies, and whether there is stretch marks. We also check the height of the fundus. We observe the skin. We also check the perineum area, the perineal area. We check for vaginal discharge. We check the rectum to find out if there are hemorrhoids. Then we continue down to the thighs, check for varicosities. And that's basically it. And how they are in terms of their diet. Cleanliness. That's basically for the first visit. For the other visit, we go in detail as to what type of clothing you wear, stuff like that... We also test urine as well. For sugar and abdomen at each visit. Usually ask the patient to bring a specimen with them. Or if they are unable to do that we will take a specimen here and test it.*

The previous two strips provided detailed reference to the evaluations conducted during prenatal care appointments in both the public and private care settings. While physicians tended to reference medical evaluations and diagnostic testing, nurses tended to reference comprehensive physical examinations, preventative health education, and health promotion during visits. This aligns with what women discussed as their experiences of the evaluated pregnancy course.

Providers also discussed their experiences of providing medical care during hospital delivery. The majority of discussions centered around processes and procedures common to low-risk deliveries, however some participants also discussed their experiences with maternal complications. When asked about the prevalence of complications during delivery, one provider responded in the following way:

> *Abruptions? The last somebody I see...the last time I see an abruption...if you have any it might just be one in a whole year. But you know they have different degree. Cuz I mean, she could have the abruption and you can't see, its only maybe after the placenta comes out. Or if you do a C-section you realize she had an abruption, a mild one. But a severe abruption where they * and so… The last one that I know of might have been maybe two years ago. That I know of was an obvious abruption that you don't even have to wonder*

The final cluster of data pertained to provider's experiences post-delivery. The following strip, from one participant who described common infant ailments nurses encountered in the postpartum period, evidences this:

> *I: What's the biggest challenge for the baby when they're born? P: From a maternal perspective or you meaning as a physiological problem? I: Physiological, maternal, anything. P: Cuz mostly it would be respiratory distress. Right, especially in the premature. Post mature- mature, sorry not post- mature babies with respiratory distress. That's what I'm saying, it may not even premature, it may be mature babies and it would be the...its primary respiratory distress syndrome. Big babies, yeah. We've been very fortunate in that sense that over the past six to eight years, because of the programs we've instituted to have at least proper antenatal care. Then we're having less and less number of women who for example show up with no antenatal care whatsoever or just one and very late at that. Then you have all these problems associated with it. It helps, it helps.*

Though a staff pediatrician is employed to provide care to infants postpartum, obstetrical nurses are also involved in the evaluation and care of infants. Newborn infants and mothers room together for the entire hospital stay, unless the infant requires intensive care. Obstetrical nurses then have the duty to care for both the mother and the baby. The previous strip highlights the challenges that nurses occasionally face in delivering post-delivery care.

There were 35 strips under Code 6: Evaluated Pregnancy Course, representing 18 sub-codes. The 18 sub-codes were evaluated for commonalities and clustered into three topics pertaining to prenatal evaluations, evaluations during delivery, and postpartum evaluations as per

the perspective of providers. This data regarding evaluated pregnancy course, from provider perspectives, reinforces what women described as their experiences with health care providers.

Code 7: Social Support

Please refer to the definition of Code 7: Social Support under Aim 1. Provider perceptions of the resources that moderate the life-stress-health relationship for pregnant women are included under this code.

There were 29 strips under Code 7: Social Support. These 29 strips were evaluated for similarities and grouped into 21 sub-codes. The 21 sub-codes were also evaluated for similarities and further condensed into four clusters including social network, societal factors for social support, provider support, and self-support.

Within the cluster of social network, providers perceived that women were supported, or should have been supported, by family and significant others. Also under this code were discussions regarding specialized support during teen pregnancy. Evidence of the role that social network plays in the support of pregnant women is elucidated in the following strip, from a participant who described issues of social network and support of pregnant teens:

> *I: Do you find that the teenagers come to their appointments and do what they are supposed to do? P: It depends on their support. It depends on their support. Now when I say the support, if its a friend * and they're trying to hide it till they're really ready to have the baby then chances are they are not going to seek help. But if the mother find out, the auntie find out, they're going to get them to the doctor or they gon' health center.*

This statement reinforces the importance of having a good social support network during pregnancy, especially for young expectant mothers. With increases in teenage pregnancies and single motherhood, families have become increasingly important in supporting women throughout their pregnancies. This provider's statement underscores the importance of this support in encouraging young mothers to utilize health services.

Within the cluster of societal support, providers discussed support for pregnant women from their employers and system changes to promote social support. One issue that providers perceive for pregnant women is the lack of employer support during pregnancies, especially high-risk patients requiring multiple medical visits. One provider's discussing about employer reluctance to allow time off for medical care evidences this:

> *But the bosses, they too, not that its mandatory that they let them go and have the book-up process. The antenatal care... But then, its when they get closer...by the time they reach the third trimester they have to go weekly. And it's a lot...[to]tell the boss lady you go every other day. But then if you have someone coming to you every other day for assessment, it's better to institutionalize them to follow them properly and manage them and get them out of here. Because the boss ain't gon give every other day off to go and have [medical care].*

This provider asserted that employer support is often not sufficient for a woman to maintain the schedule of frequent visits during the third trimester. This suggests that a possible reason for pregnant women underutilizing free services relates to issues with obtaining time off work. This strip, from the provider perspective, corroborates women's discussions about difficulties with employment during pregnancy. In an economy with limited resources, and with patients of lower socioeconomic status, missing work and losing pay to attend prenatal care appointments may not be an option.

Within the provider support cluster, providers discussed topics such as post-delivery counseling, continuity of support through prenatal and postpartum periods, and support from hospital nurses. One nurse discussed the need to continue supporting postpartum women once they are discharged home with their newborn infant:

> *Maybe it's that all mothers need it. Because they may not have it here, it's when they get home, and at home they will need somebody to call on. That is what I'm saying. So to me, that there is where we need to strengthen our maternal and child health is the psychological aspect of being a priority early. We need to pay more attention to give them coping skills and stuff like that.*

This provider cited the importance of early social support from healthcare providers, and continuity through the postpartum period, to ensure that a woman has the coping skills necessary to care for herself and her baby. Instituting a system of continuous provider support may also encourage women to stay connected to the healthcare system post-delivery.

The final cluster within social support pertained to the unfortunate need for women to support themselves, including discussions about maternal-child attachment and bonding, the psychological impact delivery, postpartum depression, and coping skills. Evidence that providers were concerned about women relying on themselves for coping with pregnancy and delivery is ascertained in the following strip from a hospital-based provider:

> *But my, my biggest concern though, and it has always been that maybe not, and even in the medical profession as well as when they go home for the family support. I don't know how much attention we give to the emotional, the psychological impact of even pregnancy and labor and delivery on the mother. The support, especially in that first week at least, that is quite pivotal to their psychological need. Because there are a lot of mothers can put on a good face, but psychologically the impact of labor and delivery and pregnancy and breast-feeding and not sleeping- some of them have a lot of postpartum blues. And we don't really pay much attention to that.*

Underlying this statement is the idea that worldwide, mental health services are often limited and not comprehensive. This provider perceived that more attention needed to be paid to the emotional and psychological impact of pregnancy, labor, and delivery for mothers. Appropriate evaluations of maternal stress and mental health might help identify women who are in need of additional attention. Women's perceptions of social support, particularly regarding stress and coping, may also encourage the uptake of postpartum services.

There were 29 strips under Code 7: Social Support, representing 21 sub-codes. These 21 sub-codes further condensed into clusters pertaining to social network, societal support, provider support, and self-support during pregnancy and postpartum.

Code 8: Social Norms related to Health and Illness

Under Code 8: Social Norms related to Health and Illness, there were no strips from provider interviews. As aforementioned, provider interviews were coded based on a priori knowledge of women's topics of discussion. For the interviews with pregnant women, Code 8 included discussions about complementary and alternative therapies and spiritual practices. Any statements by providers regarding these or similar subjects would have been included under this code. However, providers did not discuss these topics during the interviews.

Summary

Interviews with providers (n=6) were coded using theoretical and open coding, following the eight previously discussed codes in the Analysis section. Provider interview data were coded based on knowledge of what was contained in coded data from interviews with pregnant and postpartum women. Coding in this manner resulted in a more cohesive evaluation of where pregnant women and provider perspectives differed.

There were a total of 10 strips under Code 1: Values Concerning Health and Illness, as they related to pregnancy, which clustered into the most common sub-codes pertaining to the value of general preventative care and early prenatal care, the value of breastfeeding, and value of an effective health system.

Representing the code with the most provider data, were the 38 strips under Code 2: Attitudes towards Health Services.. The 30 sub-codes within Code 2 condensed into clusters that pertained to provider's perceptions of pregnant and postpartum women; provider's perceptions of women's attitudes towards the health system; and provider's perceptions of women's attitudes towards providers.

Code: 3 Knowledge of Pregnancy contained 34 strips that subsequently reduced into 19 sub-codes. The 19 sub-codes grouped into clusters pertaining to two main subject areas: provider perspectives about how and where pregnant women obtained knowledge about pregnancy, and women's perceptions of the need for care.

There were nine strips under Code 4: Price of Health Services. These nine strips subsequently combined into six sub-codes, which further clustered into discussions about individual financial concerns, physician fees, and the government and health system.

Code 5: Perceived Pregnancy Course, represented the code with the least amount of provider data. These five strips were evaluated for commonalities and were found to all cluster into the topic of maternal perceptions of the necessity for care.

Provider interviews contained 35 strips under Code 6: Evaluated Pregnancy Course, representing 18 sub-codes. The 18 sub-codes clustered into three topics pertaining to prenatal evaluations, evaluations during delivery, and postpartum evaluations as per the perspective of providers.

There were 29 strips within Code 7: Social Support, which grouped into 21 sub-codes. The 21 sub-codes were also evaluated for similarities and further condensed into four clusters including social network, societal factors for social support, provider support, and self-support.

Finally, under Code 8: Social Norms related to Health and Illness, there were no strips from provider interviews. Providers did not discuss what had previously been defined, in coding of women's interview data, as social norms. Therefore, no provider strips fit within this code.

Emergent Categories

Categories were determined by evaluating clusters of data within each of the eight previously discussed codes, comparing data clusters across codes, and further condensing them

to uncover similarities. Data clusters from each code are presented in Table 5, along with preliminary category labels.

Table 5. Emergent Categories- Interviews with Providers

Code	Clusters	Preliminary Categories
Values Concerning Health and Illness	1. General Preventative Care/PNC 2. Breastfeeding 3. MD Collaboration/Patient Privacy	1.Women's Health 2. Child's Health 3. Health System Factors
Attitudes towards Health Services	1. Provider Perceptions of Preg.Women 2. Women's Attitudes Towards System 3. MD vs. RN Care, RN Scope of Pract.	1. Patient Provider Relations 2. Health System Factors 3. Patient Provider Relations
Knowledge of Pregnancy	1. How women obtain health knowledge 2. Women's perceptions of need for care	1. Health System Factors 2. Women's Health
Price of Health Services	1. Personal Finances 2. Physician's Fees 3. Government Support	1. Women's Health-Financial 2. Health System Factors 3. Societal Factors
Perceived Pregnancy Course	1. Women's perceptions of need for care	1. Women's Health
Evaluated Pregnancy Course	1. Prenatal Evaluations 2. Perinatal/Delivery Evaluations 3. Postpartum Evaluations	1. Women's Health 2. Women's Health 3. Women/Child Health
Social Support	1. Social Network 2. Societal Factors of support 3. Provider support 4. Self-support	1. Social Support 2. Social Support 3. Patient Provider Relations 4. Women's Health-emotional
Social Norms r/t Health and Illness	No data	No data

Preliminary categories, within each of the codes, were determined by labeling clusters based on the overarching theme. Preliminary category labels were then evaluated for similarities and, where redundant, combined to form the following emergent categories:

1. Women's Health-Physical, Financial, and Emotional
2. Child's Health-Fetal and Newborn
3. Patient Provider Relationships

4. Factors pertaining to Health System Structure, Function, and Processes
5. Social/Societal Support

Category 1: Women's Health

This category was comprised of data clusters from Code 1: Values Concerning Health and Illness; Code 3: Knowledge of Pregnancy; Code 4: Price of Health Services; Code 5: Perceived Pregnancy Course; and, Code 7: Social Support. As previously presented, topics pertaining to women's health, from the perspective of providers, included the value of general preventative care and early prenatal care; women's perceptions of the need for care, related to pregnancy knowledge and perceived pregnancy course; prenatal, perinatal, and postpartum medical care; issues surrounding women's personal finances when choosing where and how often to receive care; and, psychosocial aspects of coping and self-support postpartum.

Category 2: Child's Health

The Child Health category was comprised of data clusters from Code1: Values Concerning Health and Illness and Code 6: Evaluated Pregnancy Course. Topics pertaining to child health included the value providers placed on exclusive breastfeeding and common challenges providers face when caring for infants with respiratory distress.

Category 3: Patient Provider Relationships

This category encompassed clusters of data from Code 2: Attitudes towards Health Services, and Code 7: Social Support. Topics included within this category pertained to the provider's perspectives on pregnant women in St. Kitts and Nevis; women's perceptions of nurse vs. physician roles and scope of practice; and the role of social support from providers.

Category 4: Health System Structure, Function, and Processes

Category four was comprised of data clusters from multiple codes including: Code 1: Values Concerning Health, Code 2: Attitudes Towards Health Services, Code 3: Knowledge of Pregnancy, and Code 4: Price of Health Services. This category incorporated clusters of strips that pertained to physician collaboration, preregistration processes, and patient privacy; provider perceptions of women's attitudes towards the health system; physician fees; and the availability of health education at various points of care.

Category 5: Social/Societal Support

The final category encompassed clusters of data from Code 4: Price of Health Services and Code 7: Social Support. Strips pertaining to provider discussions about government financial support; familial support, or lack thereof; and, employer support during pregnancy were included in this category.

Observational Data

Observations were conducted in four community health centers representing four different parishes (communities). These community centers were: Sandy Point Community Health Center in St. Kitts (rural); Basseterre Community Health Center in St. Kitts (urban); Brown Hill Community Health Center in Nevis (rural); and Charlestown Community Health Center in Nevis (urban). Eighteen hours of observation were conducted: fourteen hours of data were collected the aforementioned centers by the PI, with an additional four hours of concurrent observation provided by four undergraduate research associates who accompanied the PI to the Sandy Point Center in St. Kitts. Data was collected via handwritten field notes, photographs of the physical space and supplies, and a daily analytic memo journal. Information presented hereafter refers to collective data of all health centers, including facilities, personnel, and

documents. It is intentionally presented this way, due to the small size of the communities, the limited number of community centers and personnel observed, and the intent to avoid breeches of privacy.

Facilities and Personnel

Four community health centers were visited and observed during data collection in June 2013. The four centers observed were chosen by the nursing directors of community health based on timing of prenatal clinics, and community center personnel were informed in advance of our intended dates and times for visitation.

Sandy Point Community Health Center. A majority of observation time was conducted at the Sandy Point Community Health Center, located inside of the newly built Pogson Urgent Care Center in the rural Sandy Point Community in St. Kitts. Observation at this center was conducted on Monday, June 11, 2012 from 0800 to 1230 pm by the PI and four undergraduate students (1 hour each). The facility was located directly across the street from the old Sandy Point Community Center, which was visibly much smaller and older than the new facility. Upon entry into the building, a wheelchair accessible ramp led directly into the open-air reception area. The entry contained healthcare related literature and signage, seating benches on both sides of the ramp, and a reception desk. To the left of the reception area was the Pogson Urgent Care Center, which was separated from the open-air entry by a glass door. To the right of the reception area was the Sandy Point Community Health Center, also separated by a glass door.

We were met and greeted by the St. Kitts community center nursing administrator upon arrival, who introduced us to the staff and patients within the community center. Upon entry to the community health center side of the building, there was a large private waiting room with 45

chairs and a small reception desk. The area was clean, well built, and well lit by sun entering through exterior windows. Colorful posters and paintings, targeted to children and families, and healthcare related posters hung on the walls. Health related signage include a poster with the recommended immunization schedule, a poster with steps for disaster preparedness, and a poster with days and times for services offered by the CHC. More women than men were observed in the clinic waiting area. Approximately 15-20 patients could be observed in the waiting area at any point. Five visibly pregnant women visited the clinic between the hours of 0800 and 0945. This was to be expected, as this was a scheduled prenatal clinic morning. Many patients chatted with each other or on cellphones, while others sat quietly with their small children. As is typical of the culture, individuals greeted others upon entering the waiting room and people seemed to know or recognize others that were waiting.

Patients were called by title and last name by the nurses in order of arrival. There did not appear to be a sign in sheet at the reception desk, and there was not a receptionist present. However, the nurses station was located in a private room just off of the waiting area, and there was always at least one nurse observing as individuals entered and exited the waiting area. It is possible that the nurses maintained a waiting list inside of the nurse's station. However, it appeared that the nurses knew the patients when they entered, knew what they were visiting for, and were able to manage patient flow based on this knowledge.

The "L-shaped" hallway leading from the waiting area to the examination rooms contained a nurse's station, where vital signs were being measured, two examination rooms, restrooms, and 2-3 business offices for community clinic personnel. On the day of our visit, there were 3 community center nurses, 3 nursing students, 1 community center nursing administrator, and one physician present. Individual patients were called to the station for an

initial history and physical examination. Some returned to the waiting area to wait for the physician, while others went straight to the physician's exam room. Medical supplies were fairly typical of a community clinic setting, and included blood pressure cuffs, adult and infant weight scales, tape measures, urine cups and urine dipsticks, and disposable items such as gloves, tape, and bandages. Observation of the physician's exam room was not possible since it was in constant use during our visit. Four interviews with pregnant women were conducted at this community center, in addition to observations.

Basseterre Community Health Center. Basseterre Community Health Center is an urban center located in the capitol city of Basseterre St. Kitts. The health center is located in a residential, tree-lined area within a brisk 10-minute walk to the city center. Many locals called the Basseterre Health Center the "Main Center", and this was evidenced by the visibly older facility and surroundings. The entrance to the two-story building consisted of an open-air sidewalk with three stairs into the first floor. There was not a wheelchair accessible ramp at this particular facility. The main hallway consisted of 5 office-type wood doors leading to spaces on the right side of the hallway, with benches for seating on the left. Twice the PI observed this community center: first on June 7, 2013 from 12:45-2:00 pm while awaiting a meeting with the coordinator of community health clinics.

During the first observation, only the hallways were observed (no patient care areas). There were approximately 30 patients that came and went during the first 30 minutes of observation. A group of 8 medical students, as identified by their short white coats, were also present in the hallway. A brief conversation with one middle-aged, male medical student from Cameroon revealed that the students were waiting for their instructor of psychiatry, who was seeing patients. Patient's to be seen at the psychiatric clinic checked in at a small reception

window at the front of the hallway. They were then called by a number, which was provided to each patient on a cardboard index card, and escorted into the doctor's office. Observations of the upper level of the community center were minimal. There were 5 doors on the same side of the building as the lower level, with an open-air balcony on the opposite side. All doors contained the name of an employee or a department name, and it appeared that there were not patient care areas on the upper level. A 2:00 pm meeting with the coordinator of community health centers concluded the observations for that day.

A second period of observation at the Basseterre Community Health Center was conducted on June 12, 2013 from 8:00 am to 11:30 am. This time, observations occurred mostly in the patient care area located to the left of the stairs upon entry. There were approximately 12 metal chairs in a small waiting room, along with a nurse's station, one patient exam room, and an administrative office. Colorful posters with healthcare literature and education were on the walls, along with a small table full of health-related educational pamphlets and literature. At 8:15 am there are three nurses, four nursing students, one nurse manager, and a housekeeper present inside of the patient care area. Men and women enter the center, speak and smile in a friendly manner, then continue to their seats. There were three women, two children, a teenager, and one male present. There was a general health clinic for all ages in addition to the antenatal clinic during the observation period. Approximately six antenatal patients attended the clinic during observation; two prior to 10:00 am and an additional four patients arriving at 10:15 am.

Informal discussions with the nurses and nursing students provided some additional data. As explained by one experienced nurse, typical prenatal clinic laboratory studies for the first visit include the following: Human Immunodeficiency Virus (HIV), hemoglobin and hematocrit, white blood cell count, platelet count, sickle cell disease testing, blood typing, and syphilis

screening. The nurse also explained that a blood glucose screening result within normal limits, during the first exam, clears the mother of additional glucose testing later in pregnancy. If the blood glucose screening is high, the mother will receive a glucose tolerance test during her second trimester. Urinalysis and fecal occult blood are also tested at the first prenatal visit, and all laboratory tests are repeated at the hospital during the booking-in process.

During clinic observation, the opportunity arose to observe a patient assessment. The nurse on duty obtained verbal permission from the patient, who appeared to be around 8 months pregnant and in her late 30's. The appointment began with a health history. Topics of discussion included perceptions of general health; avoiding stress and sleeping well; swelling in the lower extremities; questions for the mother about fetal movements; adequate consumption of water; elimination patterns and concerns; and dietary habits. The physical exam proceeded directly after the health history. The exam included the following: breast exam and colostrum check; abdominal palpation and fundal height measurement; and, Doppler ultrasound of fetal heart tones. The patient and nurse then proceeded with an educational session, which included topics such as variations in three signs of impending labor; understanding Braxton Hicks contractions versus labor contractions; and precipitous labor signs. The nurse and patient then discussed the date and time for her next expected antenatal clinic visit, the nurse completed the patient's medical record forms, and the patient gathered her belongings and exited the center.

Charlestown Community Health Center. Charlestown Community Health Center is an urban center located in the capital city of Charlestown, Nevis. The center is located in a business district in the center of town, within a brisk five-minute walk to the ferry port and bus stops. Charlestown Health Center, observed on June 8, 2013 at 4:30-5:30 pm is a visibly older, moderately sized community center with entry doors on either side of the large waiting room.

Due to the time of observation, there were no patients in the waiting area. Health clinics typically occurred in the mornings, with the afternoons reserved for the nurses to conduct home visits, complete paperwork, and manage other administrative duties. However, one staff nurse and one administrative nurse were present to provide a tour of the center and answer questions.

The physical space included fifty to sixty metal chairs and a baby bassinet, along with colorful medical signage and posters related to immunizations and clinic schedules. A television (not on at the time of observation) was located in one corner of the room, and a stack of health-related pamphlets and literature were present on a side table. Three doors at the end of the room led to an administrative office, a nurse's station, and a patient care room with two treatment bays. The treatment area was well stocked with a variety of supplies typical of a community clinic setting. A sign communicating days and times for specific clinics (e.g. antenatal, men's health, child health) was located on the outside of the building next to the main entry door.

Brown Hill Community Health Center. Brown Hill Community Center is a rural center located in the Brown Hill community of Nevis. One of the newest centers in Nevis, Brown Hill CHC was bright and airy, clean, and spacious. The center was located on the top of a steep hill in walking distance to many residences. The entrance of the center contained a large gravel parking lot, 2-3 steps to enter the front door, and a large banner on the railing indicating the center's name. Upon entry into the building, to the right of the front door, sat a small single-person nurse's station with two metal chairs, a desk, blood pressure cuff, thermometer, an infant scale and an adult scale, and various other nursing supplies. An enclosed laboratory and pharmacy station was positioned to the immediate left of the front entry. The waiting room was straight ahead, with approximately 20 metal chairs and an infant crib for waiting patients. A small bookshelf with patient education materials, magazines, and children's books was also

present in the waiting room. A small hallway led straight back and to the right, which contained approximately three patient treatment and examination rooms, complete with supplies typical of outpatient cares settings. All equipment and supplies appeared to be new and in working condition.

During our initial one-hour observation period on June 8, 2013 at 1:00 pm, there were no patients waiting to be seen. There were, however, two nurses present and ready to take patients as they arrived. A second three-hour observation period was conducted on June 28, 2013 at 9:00 am, during which the PI was able to interview two postpartum women who arrived for their prenatal visits. Additionally, informal discussions with the nurse and nursing assistant provided corroborating information about the community nurse's role; including patient care, documentation, obtaining laboratory studies, issuing common medications, and conducting home visits in the community.

Pertinent Documents

Many documents, including education posters, pamphlets, and flyers were observed in the waiting areas of the community health centers. Most documents pertained to healthy behaviors such as eating right and exercise, though others discussed specifics on immunizations and certain conditions. There were few documents intended specifically for pregnant and postpartum women, as most were geared towards general health topics. Additionally, the PI requested copies of policies and protocols pertaining to pregnancy and postpartum, but none were available for review. However, the St. Kitts and Nevis Perinatal Card pertained specifically to pregnancy in St. Kitts and Nevis was available for review. Presentation of this document is not intended to be exhaustive of medical record paper work nor available literature about

pregnancy and postpartum in St. Kitts and Nevis. Rather, this document represents what the PI had access to, that pertained to pregnancy and postpartum, during the period of data collection.

The St. Kitts and Nevis Perinatal Card (see Appendix F) is the primary form of documentation of medical information and communication between providers during pregnancy. The trifold, double-sided, 8 ½ by 11" card is made of durable cardstock and produced by the Pan American Health Organization and the Latin-American Center for Perinatology, Woman and Reproductive Health (CLAP, 2005). The perinatal card is carried by the expectant mother and brought to each antenatal visit for additions or revisions. The following is a detailed description of the information contained in perinatal card.

The front of the trifold card contains the location of antenatal visits and the Delivery Hospital at the top of the card. Instructions for how to use the card are presented in the middle front and read as follows:

> *Pregnancy is not a disease, but needs monitoring by the health team in order to avoid complications. It is important to make your first visit to the health center without delay. Keep your appointments and follow the health team's advice. This card contains important information for your health and your child's health. Carry it with you always and hand it to the health team at every visit: during pregnancy, labour, and at well baby visits.*

The bottom front of the card contains the patient's information including name, address, telephone number, and town. The inside of the card contains medical record information. This includes the perinatal clinical record; patient history information including family, personal, and obstetrical histories; details about the present pregnancy including immunization status, laboratory results, and gestation; physical exam details including date, weight, gestational age, fundal height, urinalysis, and fetal heart monitoring; details about the labor and delivery; documentation on the neonates physical exam, laboratory status, and measurements; and discharge details for both mother and neonate.

The back of the perinatal card contains detailed information about antenatal visits, including education on topics such as safe sex, tobacco and alcohol use, breast feeding, delivery plans, and family involvement. Each of these topics is to be documented, according to the antenatal visits table, during the first visit (< 12 weeks), the second visit (at 26 weeks), the third visit (at 32 weeks), and the fourth visit (at 34 weeks). Within the same table, space is provided for documentation of bacteriuria, proteinuria, hemoglobin, folic acid, syphilis, tetanus, and malaria. Graphs on maternal weight gain by gestational age and uterine height by gestational age are presented in conjunction with notes on hospitalizations during pregnancy and a freeform area for additional notes.

During observation of an antenatal visit at a community health center, medical personnel were observed documenting physical exam and history findings on the perinatal card in the appropriate spaces. Evidence of the use of perinatal cards in this setting was provided by an inspection of three mother's perinatal cards, which were well used with considerable amounts of documentation.

Presentation of Themes

There were five emergent categories that represented data from interviews with pregnant and postpartum women and five emergent categories that represented data from interviews with providers. Cross-analysis of these categories indicated distinct similarities, which clearly represent thematic elements for this study. The five categories that are inclusive of pregnant/postpartum women's perspectives and provider perspectives, as well as information corroborated from observations, are:

1. Women's Health-Physical, Emotional, Financial, and Spiritual
2. Child Health

3. Patient Provider Relationships and Rapport
4. Health System Structure, Function, and Processes
5. Social Network/ Societal Support

Though all of these categories are represented within the data, three of them came across the strongest within the analysis. These were discussions pertaining to women's health, patient provider relationships and rapport, and health system processes. Further analysis of these three categories indicated women's issues of empowerment; trust in providers; and confidentiality and privacy to be the major themes. While the categories of child health and social support did emerge from the data, these topics will not be further discussed in Chapter Five. Though Categories 2 and 5 were not as broadly woven into provider and patient perspectives as Categories 1, 3, and 4, they remain important elements of women's experiences of pregnancy in St. Kitts and Nevis and should be considered for future study and more in-depth analysis. The following themes are discussed in more detail in Chapter Five: women's issues of empowerment; trust in providers; and confidentiality and privacy.

CHAPTER FIVE: DISCUSSION

Introduction

The purpose of this focused ethnographic study was to better understand issues of prenatal care service under-utilization in St. Kitts and Nevis. To accomplish this, two aims were developed. They were:

Aim 1: To describe the experience of prenatal care from the perspective of the women, providers, and policy makers in St. Kitts and Nevis (hereafter referred to St. Kitts and Nevis when referring to the entire nation, and St. Kitts or Nevis when referring to a specific island); and,

Aim 2: To document the barriers and facilitators to full community use of free prenatal care services. These aims were accomplished by conducting interviews with women about their experiences, or lack thereof, of prenatal care who are between the third trimester of pregnancy and one year postpartum; conducting interviews with providers and policy makers about the health system; and observing the culture of prenatal care in the community health centers, hospital obstetrics ward, and other appropriate locations.

Findings from interviews with pregnant and postpartum women, interviews with healthcare providers, and observations of health system settings have informed the emergent themes of a) shared decision-making and empowerment as an individual determinant of healthcare utilization, b) patient-provider rapport and social support as a valuable societal determinant of healthcare utilization, and c) provider collaboration and system navigation as important system determinants of health utilization.

Theoretical Framework

The *Societal and Individual Determinants for Health Care Utilization* Model is a behavior model that helps better understand the relationship between societal determinants (technology and norms), the health services system (resources and organization), and individual determinants (predisposing, enabling, and illness level) of health services utilization (Andersen & Newman, 1973). The overall purpose of the *Societal, Individual, and System factors for Health Care Utilization Theory* is to guide the analysis of the equitable distribution of health care in the United States. Empirical findings from studies using this theory can help explain patterns and trends in utilization. Three constructs help understand utilization trends: Societal Determinants, Health Services System, and Individual Determinants. Because women were the unit of analysis for this study, coding of data using both inductive and deductive techniques was guided by this framework.

For this study, data pertaining to the constructs of *Societal Determinants*, *Health Services System*, and *Health Services Utilization* all served as contextual underpinnings for *Individual Determinants* (See Figure 2). This is because pregnant or postnatal women, the individuals, were the unit of analysis for this study. Data regarding Predisposing, Enabling, and Illness Level Individual Determinants were gathered and analyzed via demographics forms and interviews with women. Data regarding Health Services System (resources and organization) and Societal Determinants (technology and norms) were gathered and analyzed through observations of care centers and interviews with providers. The original model focused, in part, on illness level as an individual determinant of health care utilization. The adapted model, for use in studies about maternal health, allows this theoretical framework to be more applicable to utilization factors associated with pregnancy.

As has been demonstrated by the emergent categories and themes uncovered in this study, the *Societal Determinants*, *Health Services System*, and *Health Services Utilization Model* was an appropriate model to guide planning and analysis for this study. The discovery of themes pertinent to women's experiences of pregnancy and prenatal care in St. Kitts and Nevis was largely reflective of what can be explained by this theory.

An individual's use of health services is dependent upon three variables: *predisposing, enabling, and illness level.* Predisposing characteristics include demographic factors such as age, sex, and marital status; factors related to the social structure such as education, occupation, and race; and beliefs/attitudes regarding health and health services. Enabling characteristics include family and community related factors including income, insurance status, cost of services, and access to regular sources of care. Illness level characteristics refers to both perceived and evaluated illness and includes factors such as symptoms, diagnoses, and disability.

This tenets of this theory are reinforced by the findings of this study. Categories and themes representative of individual factors of service utilization (education, beliefs, and attitudes), societal factors of service utilization (social support, social norms), and system factors of utilization (provider rapport, cost, system processes) all emerged within the context of interviews with women and providers, as well as through observations.

Emergent Themes

Data analysis from interviews with pregnant and postpartum women, interviews with providers, and observations indicate the importance of women's empowerment and shared decision-making; patient confidentiality and privacy; and inter-professional collaboration in pregnant and postpartum women's healthcare decision-making. These themes shape women's

experiences of pregnancy and prenatal care in St. Kitts and Nevis, and as a result, affect their utilization of health services. Each of the aforementioned themes is discussed in further detail below. They are presented from the combined perspectives of providers and pregnant women, to elucidate similarities and inconsistencies in perspectives. Following the presentation of each theme, potential methods to address women's needs, as perceived by interview participants, are discussed.

Theme 1: Individual Determinants

Patient Empowerment for Improved Health-Related Decision-Making

One of the findings of this study pertained to women's knowledge, or lack thereof, about the need for prenatal care. Both providers and women believed that women were knowledgeable about available services, system processes, and general health topics during pregnancy. However, providers perceived that women often chose not to utilize health services with appropriate frequency and consistency because of a lack of behavioral intent. In other words, providers believed quality, accessible health education was available yet women often failed to act upon obtaining the education or using the education they had obtained. On the other hand, women believed that they were knowledgeable about the subject of prenatal care, but chose to use certain services based on perceptions of quality, desirability, or need.

Powerlessness emerged from the data as one theme from the perspective of women in St. Kitts and Nevis. As previously discussed, many women interviewed for this study perceived a lack of power to direct health-related decisions. When knowledge, decision-making power, and resources were not available, women tended to feel as though they were not in control. They perceived an inability to control certain facets of their pregnancy (e.g. privacy, confidentiality), delivery (e.g. pain management, choosing bottle over breastfeeding), and patient-provider

relationship (e.g. limited education available at private office, mistrust of nursing abilities) so they used teas, prayer, and other complimentary and alternative therapies that helped them feel more in control of their outcomes.

"Empowerment occurs when the health care provider's goal is to increase the capacity of patients to think critically and make autonomous, informed decisions (Anderson & Funnel, 2009, p. 277)." Empowering women to make informed decisions during pregnancy may result in more interest in their health through intrinsic motivation. The first step in patient empowerment is to ensure the availability of good quality, comprehensible medical information (Tourolia, 2013) Expansion of patient education into private prenatal care settings will help reach the segment of the population that may not attend community health center education sessions. Additionally, providing quality information regarding traditional medical practices and complementary therapies might enhance women's understanding of how these practices may positively or negatively influence pregnancy outcomes.

Expansion of patient education should entail a multi-faceted approach. Regardless of the approach, the most effective patient teaching involves a "two-way process of communication, keeping the patient actively involved "(Falvo, 2010, p 213). Approaches might include a community-based telephone nursing support program throughout the perinatal and postpartum periods (Bullock, et. al 2002; Bullock, et. al 2009), increasing the availability of patient education leaflets at an appropriate literacy level in all community health centers; conducting individualized, in addition to group, education sessions during prenatal appointments; employing a nurse in every private physician's office to supplement physician care and provide patient education; and, increasing the use of technology (e.g. text message based interventions) in

delivering social support and health education (Cole-Lewis & Kershaw, 2010; Downer et al, 2005; Winstead-Derliga, et al, 2012).

More importantly, strengthening patient-provider relationships through a focus on shared decision-making is essential for encouraging women to use intrinsic, as opposed to extrinsic, motivators. Traditional patient-provider relationships have focused on a "bureaucratic view of consumerism based on controlling costs, outcomes, and efficiency" (Cahill, 1998, p. 121). This type of relationship promotes provider decision-making and encourages passive patient involvement. Motivation for good health-related outcomes is extrinsic, based on the paternalistic desires and direction of the provider rather than the patient (Hain & Sandy, 2013).

Shared decision-making is a multi-faceted approach to patient-centered care that utilizes patient preferences, scientific evidence, and clinician expertise to help patients make informed decisions (Ferrer & Gill, 2013). Successful empowerment through shared decision-making depends upon bi-directional trust, valued opinions, and open communication between the patient and provider. Healthcare decisions are then made based on shared information, consensus on preferred treatments, and a mutually agreed upon plan (Hain & Sandy, 2013). Paradigm shifts for both the patient and the provider are necessary for successful patient empowerment. While the patient is tasked with the responsibility of behavioral motivation, the provider is also tasked with the responsibilities of relationship-building, clinical competence, adequate interaction time, and self-reflection (Bigmead & Cowley, 2005; Hook, 2006; Hostick & McClelland, 2002; Wiggins, 2008). Shared decision-making has been shown to reduce healthcare spending and improve patient outcomes (Lee & Ezekial, 2013) and may also lead to improved utilization of medical care services, in St. Kitts and Nevis, through patient empowerment.

Employment of one or more of these interventions might help to address women's feelings of powerlessness through increased education, critical thinking and shared decision-making, and improved patient-provider communication. The perceived increase in control over health-related decisions might increase feelings of empowerment and stimulate individual interest in health promotion and disease prevention, which may lead to improved utilization of community health center services.

Theme 2: Patient-Provider Rapport

Improving Public Perceptions of Nursing Practice in St. Kitts and Nevis

Another finding of this study suggests that women have certain perceptions of public health and hospital nurses, which may make them reluctant to use these services. Women's understanding of the nurse's education, various roles during pregnancy, and scope of practice appears to be limited. This was evidenced by various discussions pertaining to a preference for paying for services to ensure a physician was present, negative attitudes towards certain experiences with nursing care received at community health centers, and limited knowledge about the scope of prenatal services provided at community health centers.

Patient-provider rapport emerged from the data as one aspect of pregnancy-related care that women highly valued. For women, important aspects of this relationship included trust in their provider's abilities to provide the best care, comprehensive and timely services, and confidentiality of their medical information. Women seek pregnancy-related experiences "as seen on TV". Their preference is for high technology, individualized, comprehensive care at affordable prices. However, providers feel that women have a misunderstanding of the resources and time required to establish such a system of care and fail to recognize that good, basic,

preventative care helps alleviate the need for high-tech, tertiary care. This disconnect might be founded on women's lack of knowledge regarding the benefits of health promotion and disease prevention and their perceptions of substandard care in public, versus private, settings.

Women, and the entire population, need to become more aware of the availability and necessity of health promotion/disease prevention services at easily accessible, free community health centers. Increased promotion and advertisement of these services, through television, radio, and community engagement (e.g. health fairs) may improve service uptake. Initiating more campaigns that discuss health promotion and disease prevention, coupled with advertisement of available services, may encourage increased utilization of health services.

Also enmeshed in women's desire for an effective patient-provider relationship is the notion that a better quality of care can be obtained at a private physician's office. This issue of public perception of nursing is not novel, nor is it specific to any one country. It is no secret that the nursing profession has historically struggled to achieve public awareness of nursing education, abilities, and scope of practice (Brodie et al, 2003; Elliot & Stewart, 2013; Reuter & Ford, 2008). Early nursing research studies (Nightingale, 1859; Polit & Beck, 2008) focused on evaluating nursing outcomes to provide evidence of effective, efficient, and quality care provided by nurses in a variety settings. Current pregnancy-related research has demonstrated that nursing interventions during pregnancy improve maternal-child outcomes (Bloom et. al, 2011; Hodnett, Fredericks, & Weston, 2011; Koniak-Griffin et. al, 2000; Lassi, Haider, & Bhutta, 2010). Establishing trust in nurse's abilities to provide high quality, comprehensive care to low-risk pregnant women will be important in improving public perceptions of nursing care in St. Kitts. This may encourage women to use available services with more frequency and consistency.

A method of addressing these concerns is to document and report nursing outcomes related to pregnancy and postpartum in St. Kitts and Nevis. Dissemination of the evidence of good nursing outcomes to the public, healthcare providers, non-governmental organizations, and relevant health policy organizations may improve women's perceptions of nursing care. One method of promoting public awareness and appreciation of nursing is to initiate "National Nurses Week" in St. Kitts and Nevis. An example is the American Nurses Association (ANA) "National Nurses Week" held annually each May. The weeklong celebration was initiated in 1954 to celebrate the contributions of nurses and nursing to society. Suggestions for celebrating nurses and nursing include promoting the value of nursing, conducting media outreach, advocating for the profession, and planning an event (ANA, 2013). Additional details and ideas on how to celebrate nurses can be found on the National Nurses Week website. Furthermore, addressing evidence of less than optimal nursing outcomes through evidence-based changes to nursing practice may improve patient perceptions. Finally, cross-promotion of community nursing services at private physician's offices, and vice versa, may help foster trust in nursing services.

Addressing Patient Perceptions of Privacy and Confidentiality

A final theme about providers that emerged in interviews with both women and providers suggests that there is a perceived, or real, issue with patient privacy and confidentiality of medical information. The availability of health centers within walking distance of each home in St. Kitts and Nevis provides unrestricted access and low cost care to all members of society. The establishment of these centers has drastically increased health promotion, disease prevention, and health outcomes in the Federation. However, small community sizes coupled with self-contained community centers may had led to patient's perceived lack of privacy. With each center in

walking distance to the homes, patients encouraged to attend community centers in the parish where they live, and nurses occasionally living and working in the same parish, patients may often inadvertently encounter friends or family when obtaining medical care at the center. Additionally, group educational sessions, while effective may increase patient's perceptions of lack of privacy.

Patients also perceive a lack of confidentiality in their medical information when obtaining care at community health centers. Several patients, and a few providers, cited confidentiality breeches by providers as a major reason for underutilization of community nursing care. Though documentation of policies related to patient confidentiality rights were not observed, the general notion of the importance of patient confidentiality was evident during interviews with women and providers. Sensitive information such as sexually transmitted disease history, previous pregnancy history, co-morbidities, and paternity are often topics of discussion during prenatal care visits. Confidentiality of this, and other, information is highly valued by women in St. Kitts and Nevis. The perceived, or real, lack of confidentiality when utilizing community services may contribute to decreased uptake.

One way to address the perceived lack of confidentiality is to establish related policies and programs for privacy and confidentiality retraining for all providers in St. Kitts and Nevis, particularly community health center providers. The Health Insurance Portability and Accountability Act (HIPAA), established by the United States Department of Health and Human Services in 1996, governs patient rights for confidentiality and privacy of health information in the United States. This document may serve as a foundation for instituting similar policies in St. Kitts and Nevis. It is highly likely that CARICOM and the St. Kitts and Nevis Ministry of Health maintain similar policies regarding patient rights, however the PI was unable to obtain

these policies during the study. If medical information privacy policies have not yet been established, efforts towards establishing policies and educating providers may help improve public perceptions of the quality of community nursing care.

Theme 3: Health System Factors

Increasing Nursing Presence to Improve Patient Navigation and Provider Collaboration between Public and Private Health Systems

One of the thematic elements that emerged from the interview data with women and providers and through observations is the confusion women face with the health care options available. The Ministry of Health maintains a system of free, government subsidized care to all residents of St. Kitts and Nevis. In addition, private physician services are available to residents on a fee for service basis. This system presents residents with excellent options for choosing their point of service.

However, many participants expressed confusion or demonstrated a lack of knowledge about one or both systems of care. Several mothers were not aware that free prenatal care services and education were available to them at the community health centers. Other participants were uninformed about the roles of private versus public physicians and nurses at the time of delivery. Still others faced the decision of allocating limited income to obtain what they perceived to be better care versus facing the stigma of low socioeconomic status by using free community services.

Additionally, documentation of patient data is completed via paper medical records, as shared electronic medical records have not yet been instituted. This places responsibility on the mother to present her perinatal documentation card at each visit in order to ensure providers have access to pertinent pregnancy-related histories and physicals. When a woman chooses to

alternate between private and public care, potential issues in continuity of care and medical information sharing between providers might arise. Additionally, lost perinatal cards may pose risks to confidentiality and limitations in a provider's ability to obtain a complete patient profile.

A viable suggestion for addressing issues related to continuity of care and patient navigation is to employ nursing case managers or to incorporate the role of case management into current nursing supervisory positions. Case managers could be advanced practice nurses (e.g. Nurse Practitioners, Clinical Nurse Specialists) or highly qualified, experienced registered nurses. The American Nurses Association (2003) defines the role of case management as:

> *Nursing case management is a dynamic and systematic collaborative approach to provide and coordinate health care services to a defined population. The framework …includes…five components: assessment, planning, implementation, evaluation, and interaction.*
>
> *Nursing case managers actively participate with clients to identify and facilitate options and services, providing and coordinating comprehensive care to meet patient/client health needs, with the goal of decreasing fragmentation and duplication of care, and enhancing quality, cost-effective clinical outcomes.*

Nursing case managers could serve as the link between public and private sector care for pregnant women. Assessments of pregnancy knowledge and readiness to learn; general social support and individualized education to supplement group CHC sessions; surveillance of medical appointment and treatment adherence; assistance with patient navigation of health system resources; and, maintenance of comprehensive medical records are just a few of the potential roles for nursing case managers in St. Kitts and Nevis.

One method of employing nursing case managers would be to assign a primary, senior level nurse as the Prenatal Nurse Case Manager. The Prenatal Nurse Case Manager would be responsible for making weekly contact with all private obstetrics offices and all community health centers in St. Kitts or Nevis to receive a list of pregnant patients. Weekly report would include informative updates on new and existing prenatal care patients, including those with

educational, social support, and high-risk needs. The nurse case manager would then follow-up by phone call or appointment with new patients, and existing patients who require ongoing needs. The case manager would arrange referrals for additional services and educational sessions as needed, and maintain open lines of communication with CHC and private care providers.

Post-delivery, senior-level nurse managers are currently tasked with collecting information and patient records from the hospital regarding mothers who have delivered an infant. The nurse manager hand-delivers patient records to the community health center nurses in each parish, and provides a brief patient report regarding their patients who have delivered. The purpose is to maintain continuity of care for home nursing visits post-delivery. This role could be extended to include delivery of patient records and brief report to private physician offices for private-sector patients as well. Potential outcomes of employing case managers include increases in health service utilization, improvements in patient outcomes, and additional points of access for research and data collection.

Inter-professional collaboration and education. Collaboration is defined by the World Health Organization as care that occurs" when health workers from different professional backgrounds provide comprehensive services by working with patients, families, and communities to provide high quality care across settings" (WHO, 2010, pg. 13). The concept of provider collaboration emerged from this research as a desirable health system quality for pregnant women in St. Kitts and Nevis. Collaborative provider efforts might help to improve women's perceptions of providers and of the health system, and result in increased utilization of services. Currently, nurses work primarily at CHCs and in the hospital. Perinatal physicians work in private practices that do not typically employ nurses, as well as in the hospital during

deliveries. Women and providers interviewed for this study perceived minimal collaboration between hospital-based nurses and physicians, and no collaboration between community nurses and physicians. Increasing collaboration between providers may lead to improvements in health promotion, disease treatment and surveillance, and health communications (WHO, 2010).

Inter-professional education (IPE) of healthcare providers is on the cutting edge of innovation. The World Health Organization (2010) defines IPE as a collaborative, practice ready workforce that has received effective training to provide health services in the face of increasingly complex health issues. Current research suggests that inter-professional education is key to supporting struggling and fragmented health systems worldwide and developing a collaborative workforce (WHO, 2010). IPE can be instituted through supportive management practices; the resolve to change the culture and attitudes of health workers; a willingness to update, renew, and revise existing curricula; and, appropriate legislation that eliminates barriers to collaborative practice (WHO, 2010). Instituting inter-professional education activities may lead to improved patient outcomes, enhance public perceptions of the health system, reduce strain on limited hospital resources, and aid the Ministry of Health in achieving Millennium Development Goals.

Suggestions for Future Research

While major improvements and achievements have been made in maternal-child health in St. Kitts and Nevis over the past several decades, one of the tenets of effective and efficient provision of health care is continuous quality improvement. A 2005 Agency for Healthcare Quality Summit (AHRQ) determined that, while progress has been made in increasing the awareness of need, quality improvement for improved health and cost-effectiveness of care must

occur more rapidly (AHRQ, 2005). The United States Department of Health and Human Services defines Quality Improvement (QI) as a continuous process of improvement based on three dimensions for quality care: structure, process, and outcomes. Quality improvement in the provision of healthcare has been shown to improve patient outcomes (REFERENCE).

Goals and strategies set forth by the Pan-American Health Organization (PAHO), Caribbean Community Secretariats (CARICOM), and the St. Kitts and Nevis Ministry of Health cite improvements in health access, cost, and quality as high priority. PAHO goals include ensuring improved access, quality, and use of medical products and technologies; and reducing morbidity and mortality and improve health during key stages of life, including pregnancy, childbirth, the neonatal period, childhood and adolescence, and improve sexual and reproductive health and promote active and healthy aging for all individuals (PAHO, 2013). One of the nine goals of CARICOM is enhanced functional co-operation, including intensified activities in areas such as health, education, transportation, tele-communications (2009). Additionally, the St. Kitts and Nevis Ministry of Health has set forth the following major action areas for health improvement: *Effective Stewardship; Health Promotion; Integrated Family-Centered, Community-Based Services;* and *High-Quality, Sustainable Personal Medical Services* (Martin, 2011; Martin, 2012; Martin, Martin & Faulkner, 2011). To that end, the suggestions for improving care to pregnant and postpartum women and suggestions for future research are based on local women's perceptions and interview findings.

This dissertation research sought to understand women's perspectives of pregnancy and prenatal care in St. Kitts and Nevis. If one of the goals of the Ministry of Health is to improve utilization of available health care resources, and improve personal investment in individual health, then understanding the patients' perceptions of their health and health services is vital.

As underscored in the Societal, Individual, and System Factors for Healthcare Utilization model, a patient's beliefs are a critical component that operationalizes their intent to use, or not use, medical services. Understanding women's perspectives of pregnancy, prenatal care, and the health system in general sheds light on possible reasons why service utilization is lacking. Information about why some people do (or do not) fully use the health system, based on individual and collective perceptions, is key in forming targeted intervention strategies to improve health care utilization. Now that evidence-based reasons for the lack of service uptake in pregnant woman have been deduced, a quantitative survey study with an expanded sample size might be useful to examine the magnitude of issues related to service underutilization.

Additionally, this study sought to establish preliminary information about women's experiences of prenatal care using a realist lens as a result of the lack of information on which to base a feminist study. Now, as has been clarified by the results of this study, future studies could focus on women's empowerment issues as they pertain to pregnancy in St. Kitts and Nevis. The lack of education for some, and the lack of control over the events of pregnancy and delivery have been shown to largely influence a women's decision-making regarding prenatal care. Studying issues of empowerment through an experimental model of shared-decision making between patients and providers and establishing targeted interventions to improve women's perceptions of knowledge, control, and health-related decision-making will be an important step in enhancing the overall population use of prenatal care services and improving maternal-child outcomes.

Finally, community-based participatory research building upon knowledge generated from this dissertation study may facilitate communication and improved relations between patients and providers. Such a study might employ focus groups consisting of

pregnant/postpartum women, healthcare providers, and a combined group to discuss community perspectives regarding prenatal care services and utilization. A recent meta-analysis of community-based participatory research (CPBR) suggested that CPBR is beneficial for ensuring culturally and logistically appropriate research; enhancing participant recruitment; improving outputs and outcomes; increasing the sustainability of projects; and, leading to beneficial system-wide changes (Jagosh et al, 2012). The breadth of information obtained in such a study could provide expanded evidence for establishing future maternal-child health interventions or programs based on the needs and perspectives of the community members.

Conclusion

The purpose of this study was to better understand women's experiences of pregnancy and prenatal care in St. Kitts and Nevis, West Indies to elucidate possible reasons for under-utilization of free health services, as cited by the Ministry of Health. The findings of this study suggest that women are seeking certain experiences based on what they value in the various healthcare settings. Attitudes towards health services, costs of services, social support, and societal norms all play an important role in shaping women's values about pregnancy. Based on information from interviews with women and providers, and observations of community healthcare settings, women seek the following: empowerment for healthcare decision making through pregnancy-related knowledge; enhanced patient provider relationships that foster rapport, collaboration, trust, and confidentiality; active participation in health maintenance through complementary and alternative therapies; and,

Providers seek to enhance early access to, and continuous use of, prenatal care services to improve maternal-child health outcomes. Essentially women and providers have similar goals with respect to pregnancy in St. Kitts and Nevis. To that end, suggestions that may help achieve

those goals included the following: expand educational opportunities and approaches to empower women for healthcare related decision making; educate the public about the provision of free services, education and skills, and scope of practice that nurses provide in the community setting; institute confidentiality and privacy training for healthcare personnel; consider employing nursing case managers to help patients navigate the private and public healthcare systems.

Suggestions for future research include a quantitative study design with expanded sample to better understand the magnitude of issues surrounding empowerment for decision-making; innovative educational interventions to analyze their impact on increased use of free community health services; and, employing a new model of case management and analyzing its effects on continuity of care.

Small West Indian islands, where there has been little to no health research, represent a important segment of the health disparities population. Aggregate Latin American and Caribbean health data signifies a lack of knowledge that results in greater health disparities. More research needs to be conducted in West Indian islands, such as St. Kitts, where varying cultural beliefs and practices might play a large role in population health and health services (Kreuter & McClure, 2004). Through understanding how knowledge, attitudes, and beliefs of the people on each island impacts health-seeking behaviors and decision-making, targeted health interventions can then be instituted, which will foster progress towards achieving global health goals.

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Appendices

Appendix A. Maternal-Child Health Global, Regional, & Local Health Policy

Appendix B. Internal Review Board Documents

Appendix C. St. Kitts and Nevis Ministry of Health Research Proposal

Appendix D. Letters of Support

Appendix E. Recruitment and Interview Materials

Appendix F. St. Kitts and Nevis Perinatal Card

Appendix G. Manuscript from Concurrent Study:

Ball, G., Giffin, A., Hannah, R., Mishra, S., Perez, K. and Martin, J (2013). Utilization of community health centers in St. Kitts and Nevis, *Public*, Spring 2013.

Appendix A: Global, Regional, and Local Health Policy Pertinent to Study

Pan American Health Organization Strategic Goals 2013

1. To reduce the health, social and economic burden of communicable diseases

2. To combat HIV/AIDS, tuberculosis and malaria

3. To prevent and reduce disease, disability and premature death from chronic non-communicable conditions, mental disorders, violence and injuries

4. To reduce morbidity and mortality and improve health during key stages of life, including pregnancy, childbirth, the neonatal period, childhood and adolescence, and improve sexual and reproductive health and promote active and healthy aging for all individuals

5. To reduce the health consequences of emergencies, disasters, crisis and conflicts, and minimize their social and economic impact

6. To promote health and development, and prevent or reduce risk factors such as use of tobacco, alcohol, drugs and other psychoactive substances, unhealthy diets, physical inactivity and unsafe sex, which affect health conditions

7. To address the underlying social and economic determinants of health through policies and programs that enhance health equity and integrate pro-poor, gender-responsive, and human rights-based approaches

8. To promote a healthier environment, intensify primary prevention and influence public policies in all sectors so as to address the root causes of environmental threats to health

9. To improve nutrition, food safety and food security throughout the life course, and in support of public health and sustainable development

10. To improve the organization, management and delivery of health services

11. To strengthen leadership, governance and the evidence base of health systems

12. To ensure improved access, quality and use of medical products and technologies

13. To ensure an available, competent, responsive and productive health workforce to improve health outcomes

14. To extend social protection through fair, adequate and sustainable financing

15. To provide leadership, strengthen governance, and foster partnership and collaboration with Member States, the United Nations system and other stakeholders to fulfill the mandate of PAHO/WHO in advancing the global health agenda, as set out in WHO's Eleventh General Programme of Work, and the Health Agenda for the Americas

16. To develop and sustain PAHO/WHO as a flexible, learning organization, enabling it to carry out its mandate more efficiently and effectively.

Appendix B. Protection of Human Subjects

Risks to Subjects

Human Subjects Involvement and Characteristics, and Design. Human Subject Committee approval was obtained from the University of Virginia Internal Review Board (IRB) and the St. Kitts and Nevis Ministry of Health prior to study inception. Introduction to the study for providers at the community health centers and JNF Hospital was also conducted. This introduction included a review of the study purpose, procedures, and recruitment plan. Recruitment flyers were placed in private physician's offices and in the community clinics and potential participants were made aware of the study by office staff. The research team distributed additional flyers to men and women outside of churches, parks, and other locations as determined in the field. Potential participants who called the PI were encouraged to pass the information along to friends, family members, and co-workers who have recently been pregnant.

Sources of Data. All information gathered only pertains to the current knowledge, beliefs, and practice of prenatal care in St. Kitts and Nevis. This information, though gathered from participants, participant observation, and field work does not include any personal identifiers. Material forms includes field notes, nightly reflective journal notes, photographs (buildings, equipment, health centers), photocopies of blank documents, audio recordings, and transcripts. Photographs do not include faces but include buildings, supplies, posters, educational materials, and other items deemed related to the provision of prenatal care. Photocopies include any historical information about island culture and/or prenatal medical practices that can be found in hospital archives, the library, the local nursing school, and the cultural center. Audio recordings were used to ensure the accuracy of interview transcripts.

Potential Risk. This research study presented minimal risk to study participants. Potential social risk included the possibility of social isolation after presenting opinions that may have been unfavorable to the Ministry of Health. To limit this risk, an alias was used for quotes used in presentations or manuscripts and potentially unfavorable opinions were presented in aggregate. Individual quotes that may be controversial will not be presented to the Ministry of Health or in manuscripts or presentations. There was potential for the psychological risk of believing that substandard care was received during previous pregnancies. There were no physical or legal risks to participants. A loss of confidentiality could place participants at social or psychological risk. Study documents have been de-identified to limit this risk. Data were hand-carried in a locked bag between countries.

Adequacy of Protection Against Risk

Informed consent. The principal investigator conducted informed consent and further explanation of the study purpose and procedures with each potential participant prior to inclusion in the study. Enrolled participants were given a four-digit identification number and identifying information was removed from the data. Information regarding the recruitment process, including enrollments, withdrawals, and ineligibles, was recorded. Data analysis was conducted using Statistical Package for Social Sciences (SPSS). Initial documents with patient identifiers were destroyed immediately after data analysis, and the remaining study documents will be kept in the P.I.'s locked office.

Protection against Risk. Participants in the study were given an alias during recorded individual and focus group sessions, and all recordings were kept in the possession of the principal investigator. Though the potential exists that voices could be recognizable in such a small community, the principal investigator resides outside of the study country (study

documents, recordings, data will be kept in the United States) and thus the risk of a confidentiality breach is low.

Potential Benefit to Subjects and Others

There are no direct benefits to study participants. However, indirect benefits to participants in may include an enhanced patient/provider relationship, improved perception of the quality of prenatal care, and better surveillance of the health of the pregnancy. Indirect benefits for include potential improvements in the provision of prenatal care in St. Kitts and Nevis.

Importance of Knowledge to be Gained

The importance of the knowledge to be gained is manifold. Though there is minimal direct benefit to the participants, the community and country of St. Kitts have benefited in terms of new data to inform and guide potential health system changes and promotional programs to enhance uptake of prenatal care services. In addition to benefits to St. Kitts, the dissemination of professional knowledge using a model of ethnographic descriptive techniques to hear the women's voices informs future studies that can be translated for use in areas of the United States where prenatal care uptake is poor. The knowledge gained also contributes to evaluating where potential barriers exist in meeting the Millennium (maternal-child health) Development Goals.

Inclusion of Women

This study included pregnant women, women with children, male or female midwives at the community centers, and male or female policy makers.

Inclusion of Minorities

Recruitment of participants was directed towards any race or ethnicity as long as the potential participant was considered a resident of St. Kitts or Nevis. However, the global focus makes minorities a priority in this study.

Inclusion of Children

Due to the high rate of teen pregnancy in St. Kitts (17%) and the large under-25 population (around 48%), children age 18 and older were included in this study.

Resource Sharing

Copies of all composite information obtained during the study have been provided, de-identified, to the St. Kitts Ministry of Health. In addition, final statistical reports and study findings have been disseminated to the Ministry of Health Chief Medical Officer, the Head Pediatrician, and the Matron of JNF Hospital. A presentation of findings was conducted during a follow-up trip to St. Kitts and Nevis (by the PI) in January, 2013. All community health nurses and hospital providers were invited to attend. Women participants were not invited to attend the presentation due to the risk of being identified as a participant by Ministry of Health officials and nurses, but individual meetings with the women participants can be arranged upon their request. A copy of this dissertation and any resultant manuscripts will be mailed to the Chief Medical Officer, and follow-up meetings to determine the potential for further studies or health promotion programs will be conducted.

Appendix C: St. Kitts and Nevis Ministry of Health Research Proposal

St. Christopher and Nevis
Ministry of Health
Research Project Application

Jefferson Public Citizens in St. Kitts and Nevis
(Ball, Giffin, Hannah, Mishra, & Perez-Lorenzo)

in conjunction with

Jamela M. Martin, MSN, RN PhD Student

University of Virginia

February 25, 2012

A. Project Details

I. Date of Submission

Initial contact with Patrick Martin, MD, Chief Medical Officer of the St. Christopher and Nevis Ministry of Health occurred on January 4, 2011 during which time Jamela M. Martin sought approval for a dissertation study in St. Kitts and Nevis. Informal approval of dissertation components of the project was provided by Patrick Martin MD and Ian Jacobs, MD in the Spring of 2011, during the initial planning phases. On November 30, 2011, the additional JPC project was given preliminary approval pending the submission of an appropriately formatted project proposal, originally due by January 31, 2012. Subsequent approval of additional time for completion of the proposal was provided by Patrick Martin, MD to Faculty Advisor Marcus L. Martin, MD. The deadline was extended through February 28, 2012. This final combined project proposal is formally submitted February 25, 2012.

II. Country/Region

Saint Christopher and Nevis, West Indies

III. Title

"Enhancing Primary and Preventative Care through Increased Utilization of Community Health Centers in St. Kitts and Nevis"

IV. Institutions: Names and Addresses

The University of Virginia
School of Nursing
PO Box 800782
225 Jeanette Lancaster Way
Charlottesville, VA 22903

Saint Christopher and Nevis
Ministry of Health
Community Centers, Joseph N. France Hospital, Alexandra Hospital
Basseterre, St. Kitts, West Indies
Charlestown, Nevis, West Indies

V. Person(s) Responsible for Project

Jamela M. Martin, MSN, RN PhD Student, Principal Investigator
Jefferson Public Citizens Group, Graduate Student Advisor
University of Virginia, School of Nursing
PO Box 800782
Charlottesville, VA 22903
jnm4q@virginia.edu

Marcus L. Martin, MD-Jefferson Public Citizens Group, Faculty Advisor
Vice President and Chief Officer for Diversity and Equity
Professor of Emergency Medicine
University of Virginia, Office for Diversity and Equity
P.O. Box 400881
Charlottesville, VA 22904
Phone: (434) 243-2079
Email: mlm8n@virginia.edu

Linda F.C. Bullock, PhD, RN, FAAN-Dissertation Chair
Jeanette Lancaster Alumni Professor of Nursing
Director, PhD Program
University of Virginia, School of Nursing
CMNEB 3003
Phone: (434) 982-1966
Email: lcb2u@virginia.edu

VI. Project Period

The following timeline will be used as a guide to project completion and is presented over a 12 month period (March 2012-Februrary 2013). This timeline will serve as a guide only, with tasks overlapping where possible to assist in timely completion.

Tasks	**Months**
Planning Phase-IRB approval, preparation of study materials, orientation to study	3 months- March-May 2012
Empirical Phase- Travel to St. Kitts, site observations, participant recruitment, interviews, surveys, and focus groups	1 month- June 2012
Analysis Phase-Transcription of interviews and recordings, data coding and entry, statistical data analysis	4months (ongoing)- July-September 2012
Dissemination Phase-Preparation of manuscripts, presentation of findings to Ministry of Health, dissertation defense, JPC project presentation(s)	6 months September 2012- Februrary 2013

B. Project Description

I. Project Abstract

Approximately 90% of the global burden of disease lies in poorer countries and rural communities, yet only about 10% of current research is focused on improving the health of these populations (Stevens, 2004). Smaller West Indian islands, where there has been little health

research, represent a significant segment of the global population. Aggregate Latin American and Caribbean health data results in greater health disparities related to a lack of understanding about individual population needs. The purpose of this study is to address a critical barrier to progress in the fields of public health, health disparities, and maternal-child health by further understanding the needs of West Indian populations and to advocate for changes that can appropriately address the inequities. St. Kitts and Nevis is a Federation of two islands with a population of approximately 50,000 located in the West Indies. Remarkably, St. Kitts and Nevis has 17 community health centers to serve this population, with the intentional location of each health center within three to four miles of each resident (OAS). This abundance of health centers is ideal for any country, yet an interesting phenomenon is occurring in St. Kitts and Nevis. There is a "consumer clamor for high-tech care" (17) resulting in decreased utilization of the much more cost effective health clinics. This mounting desire for specialized care is an important phenomenon for understanding the success of the readily available quality health clinics in St. Kitts and Nevis.

II. Background

a. Goals & Objectives

More research needs to be conducted in West Indian islands, such as St. Kitts, where culture is likely to play a large role in population health and health services (Kreuter & McClure, 2004). Through understanding the culture on each island, targeted health improvements are required if global health goals are to be met. Health needs of these populations must be also addressed to improve global prevention and health promotion strategies (NINR, 2011). While there is room to improve health education, the St. Kitts and Nevis Ministry of Health has data that documents people are generally aware of ways to remain in good health, but there difficulty in translating knowledge into action (P. Martin, CMO, St Kitts and Nevis Ministry of Health). Reasons for not using community health centers may include "an uninviting nature" or "skepticism about confidentiality" in addition to other reasons to be determined. Further analysis of this under-utilization trend with corrective intervention to foster greater utilization of primary care community focused health centers is especially important in St. Kitts and Nevis where the government currently subsidizes over 95% of the health system. This level of spending may not be sustainable with the current fiscal environment. Currently, the Ministry of St. Kitts and Nevis is considering social marketing as means to enhance the appeal and thus the effectiveness of the primary care health system in St. Kitts and Nevis. We have chosen to examine the health care system in St. Kitts and Nevis because UVa already has a well established connection in this nation through the program UVa in St. Kitts and Nevis. Dr. Marcus Martin, one of the initiators of this program, will serve as our faculty mentor. Nursing PhD candidate Jamela Martin has also studied in St. Kitts and Nevis, focusing particularly on prenatal care. By working directly with the Ministry of Health, we hope to help clarify why primary care facilities are under-utilized and why some women do not obtain prenatal care prior to delivery (specifically), and provide this data to the Ministry of Health for future use in health promotion programs.

Knowledge, Attitudes, and Health Behaviors

St. Kitts is an underdeveloped country with the health profile of a developed nation (P. Martin, personal communication, 2011). With the influx of money from tourists on cruise ships docking daily during the busy season, and the growing supply of fast food chains, diabetes and obesity have quickly become the nation's most critical health concerns. Services provided

include women's health, men's health, immunization clinics, child health, health promotion, and prenatal care. The provision of free primary and preventative health care through community health clinics ensures that all citizens have access to screenings, education, nursing care, and diagnostics. However, the Chief Medical Officer of the Ministry of Health has pointed out the overall lack of participation in these free services. The reasons for the lack of service uptake are currently unclear, but may include a preference for alternative medicine, reluctance to visit the health center for social reasons, or the inability to physically get to the center. The focus of the Ministry of Health is to make resources available to increase the uptake of preventative care services, and impact health issues in a preventative manner. Despite the knowledge that the services are not being used the dearth of health research in this area prohibits providers from understanding the underlying reasons *w*hy the services are not being used, and *ho*w to further address these issues. Some potential questions to ask of the general population in St. Kitts and Nevis include the following : How can community health centers understand trends in under-utilization of primary care facilities to produce a more effective health care system? Surveying the population about their knowledge, beliefs, and attitudes towards healthy behaviors may help find windows of opportunity to improve utilization of community health centers.

Prenatal Care and Maternal-Child Health

The World Health Organization cites that progress toward the Millennium Development Goal of improving maternal health has been the most disappointing of all the goals (WHO, 2010). Moreover, to address the specific issue of maternal-child health disparities, strategies must be identified that will help reduce the long-term consequences that poor maternal health has on pregnancy outcomes, such as prematurity, that puts infants at risk for dying. While infant mortality rates are on the decline, smaller countries such as St. Kitts and Nevis have mortality rates nearly twice as high as the United States (15/1000 and 8/1000 respectively) (Chief Medical Officer, St. Kitts Ministry of Health, 2011). Approximately 95% of the infant deaths in St. Kitts are the result of prematurity, partially resulting from lifestyle choices that result in hypertension and diabetes during the prenatal period. Numerous studies have shown that quality prenatal care can have a positive effect on birth outcomes and possibly lead to a reduction in infant mortality and prematurity (Chao, et al, 2010; Hussaini, Holly, & Rittenour, 2011; Van Dijk, Anderko, & Stetzer, 2011). A major challenge in the care of women and children in St. Kitts, as expressed by the Chief Medical Officer, is the overall lack of participation in health maintenance and preventative care behaviors. Though prenatal care is universally available to pregnant women at the 17 community centers located on the two islands, island health officials have noted an overall lack of use of these free services. However, the factors that influence decision-making resulting in the non-use of these free medical services have yet to be identified. The goals of this section of the study are to better understand the experience of prenatal care and to define the underlying mechanisms that create barriers to care for pregnant women in St. Kitts.

The collective purpose of this mixed-methods study is to document the barriers and facilitators to full utilization of free services at the community health centers and to describe the experience of prenatal care from the perspective of the women, providers, and policy makers in St. Kitts.

Aim 1: To document perceived barriers and facilitators in service utilization *and* knowledge, attitudes, and beliefs about healthy behaviors from the perspective of the citizens of St. Kitts and Nevis by conducting written surveys.

Aim 2: To collect a rich description of the experience of prenatal care from the perspective of women, providers, and policy makers in St. Kitts by

2.1 conducting interviews with women who *have not* obtained prenatal care prior to delivery;
2.2 conducting focus groups with women about their overall experiences with pregnancy and prenatal care in St. Kitts and;
2.3 conducting informal interviews with providers and policy makers about the health system and by observing the culture of prenatal care in the community health centers, hospital obstetrics ward, and other appropriate locations.

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III. Description

a. Methods, Work Plans, Activities, Institutional Framework

Research Strategy

The research conceptual model for this study is presented in Figure 1. This model illustrates factors and outcomes associated with health care utilization issues, using pregnancy as an example. The *Societal and Individual Determinants for Health Care Utilization* Model is a behavior model that helps better understand the relationship between societal determinants (technology and norms), determinants of the health system (resources and organization), and individual determinants (predisposing, enabling, and illness level) of the use of health care services in which type, purpose, and unit of analysis are the outcomes of the model (Andersen & Newman, 1973). Though qualitative research typically precludes the application of a theoretical model prior to data collection, this model will be used as a guiding framework for the quantitative segment of this study. Additionally it will used from the qualitative aspect, while in the field, to ensure that data is gathered from various societal, individual, and system perspectives for comprehensiveness. Surveys will include questions from the four aspects of s*ocietal determinants, health services system, individual determinants,* and *health services utilization*. Observations will focus on technology, norms, medical resources, and system organization as well as individual factors. Focus group discussions will be guided by questions from all perspectives of this model, and demographic questions will focus on predisposing and enabling factors.

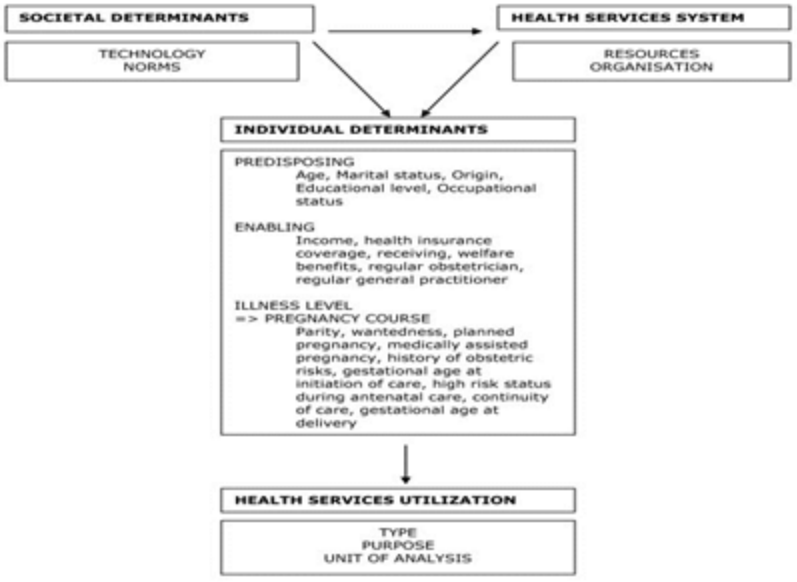


Figure 1: Societal, Individual, and System Factors for Health Care Utilization

Andersen & Newman (1973)

b. Project Design, Time Schedule & Resources

Design

A cross-sectional mixed methods research design will be used for this study. The research

team will travel to St. Kitts and Nevis for an initial data collection period of one month. Quantitative data collection methods will include the administration of a three-part survey including a *Demographics Form*, Knowledge*, Attitudes, and Behaviors Questionnaire*, and a *Health Utilization Questionnaire*. This anonymous survey will be administered in various public locations to include churches, parks, and community health centers.

Qualitative methods include focused-ethnographic interviews and descriptive methods. Qualitative description is a pragmatic approach to understanding experiences in a particular context by gathering data from a variety of sources (interviews, focus groups, health records, observations) while focusing on descriptive and interpretive validity. Using low-inference interpretation to present data produces straightforward language that can be easily translated into action to address service under-utilization (Sandelowski, 2000) (Sullivan-Boylai et al, 2005).

2. Sample and Setting(s)

Aim 1

Surveys will be administered by the team of five undergraduates with the general population and will include all ages, genders, and ethnicity (n=50-75). The three-part, brief survey will be completed anonymously by participants who agree to share their views, and can be completed in less than 10 minutes.

Setting: Potential participants will be recruited randomly as identified in churches, public locations, and community health centers over the course of one month. Participants will be enrolled serially until the desired number of surveys is reached.

Procedures: Participants will be given a brief biography of the research team and description of the study, and asked if they are willing to participate. The team will provide pens and clipboards for the participant to fill out the forms, so the surveys can be collected directly back from participants.

Aim 2.1

Interviews with women (n=10) who *have not* received prenatal care prior to delivery will be conducted by Jamela Martin, MSN, RN to elicit information regarding barriers to service use.

Setting: Participants will be recruited using purposive sampling from delivery records at JNF Hospital obstetrics ward and word of mouth in the community. Permission to access records has been granted by the Ministry of Health and will be facilitated by the JNF Hospital Matron (Chief of Nursing Services). Participants will be enrolled serially until 10 interviews have been conducted.

Procedures: Women identified from hospital records for individual interviews will be approached while in the hospital, or called on the telephone if already discharged, and asked if they are willing to participate. Informed consent will be conducted and a brief Demographics Form (see Appendix A) will be collected for demographic descriptors of the study population. A narrative interview will be conducted using the Interview Guide (see Appendix A) and is anticipated to last no longer than one hour. Interviews will be audio recorded and interview notes will be taken by the PI. Study forms and notes for each participant will be coded with an assigned study ID.

Aim 2.2

Two focus groups of 5-6 women each (n=10-12) will be conducted by the research team (led by Jamela Martin MSN, RN) to gather descriptive information regarding the overall experience of prenatal care in St. Kitts.

Setting: Participants will be recruited on a volunteer basis using flyers posted in key locations around St. Kitts such as community health centers, hospital obstetrics ward, and shopping centers. Participants will be enrolled serially until the desired number of participants is reached. Inclusion criteria for the focus groups include the following: women, ages 16-35, recent birth of a child (within the past year). The focus groups will be conducted in a relaxed, private, closed atmosphere where women are likely to gather such as a church or community center.
Procedures: Women responding to the flyers or word of mouth recruitment will be provided with a brief description of the study over the phone and any questions will be answered. Verbally consenting participants will be signed up for a focus group at a specific time and location. Upon arrival, participants will be consented and the purpose of the study will be explained. Data will be collected via field notes collected by the research team and audio-recording. Participants will complete a brief Demographics Form (see Appendix A) and a Focus Group Guide will be used by the PI (see Appendix A). Focus group sessions are anticipated to last no longer than two hours and will occur over the course of 2 weeks.

Aim 2.3
Informal interviews with medical professionals (n=4) will be conducted by the research team to better understand the system and provider perspectives of health utilization issues. Observations in the JNF Hospital obstetrics ward, community health centers in at least three parishes, and public locations (as determined when in the field) will be conducted.
Procedures: Medical professionals and health system policy makers will be informally interviewed during periodic progress meetings (2-3 times a week) about the structure and functionality of the health care system. Observations will be conducted by the PI in both public and private locations in various parishes in St. Kitts over the course of two weeks. Observational data, such as field notes, photographs, and pertinent documents will be collected by the PI. Additionally, the PI will keep ongoing theoretical notes in a separate field diary (Richards & Morse, 2007).

c. National Context

The overall goal of this project is to meet the desires of the St. Kitts and Nevis Ministry of Health in determining barriers and facilitators to service under-utilization. Through various contacts with the Chief Medical Officer and Head of Pediatrics in St. Kitts, project aims were formulated. Jamela Martin, PhD student, originally met with Dr. Patrick Martin in January, 2011 to discuss the needs of the neonatal population. Additionally, over the course of one week (during the UVa in St. Kitts and Nevis course) Ms. Martin met with the Hospital Matron, a physician in the NICU, NICU nurses, and local people about the challenges that are faced when providing care for infants. This initial data, resulting from observations, informal interviews, and ongoing discussion with Dr. Ian Jacobs (Head Pediatrician, Ministry of Health) led to the development of a prevention/health promotion centered project that focuses on prenatal care. In December, 2011, a group of students wishing to conduct a research project in St. Kitts and Nevis formed a collaboration with Ms. Martin. With the guidance of Dr. Patrick Martin, and Dr. Marcus Martin (Professor of the UVa in St. Kitts and Nevis course), the research project expanded to include surveys of the general population about health knowledge, attitudes, and behaviors and issues related to service under-utilization.

Working directly with the Chief Medical Officer and the Head of Pediatrics, the research focus was further narrowed to align with the Ministry of Health's strategic areas of prevention,

health promotion, and early intervention. These include the four major action areas of *Effective Stewardship; Health Promotion; Integrated Family-Centered, Community-Based Services;* and *High-Quality, Sustainable Personal Medical Services* (P. Martin presentation, 2011). These four action areas encompass six priority areas for the current strategic plan (2008-2012) including: nutrition and physical activity, sexually transmitted infections, mental health and substance abuse, family health, environmental health, and health systems development. Our purpose for gathering and documenting this information is manifold. This project will serve as the culminating dissertation study for nursing PhD Student Ms. Martin, it will serve as a service and research learning project for the group of undergraduate (most pre-medical) students), and most importantly, it will assist the Ministry of Health in gathering data that may be useful for future health promotion and prevention programs.

d. Sustainability

We have chosen to examine the health care system in St. Kitts and Nevis because the University of Virginia has a well-established relationship with this nation through the program "UVa in St. Kitts and Nevis". Dr. Marcus Martin, one of the initiators of this program, will serve as Faculty Mentor for the group of five undergraduate students. Nursing PhD student Jamela Martin has also studied in St. Kitts and Nevis, focusing particularly on prenatal care. By working with the program director of "UVa in St. Kitts and Nevis" and with a graduate student whose five-year plan includes a continued research relationship with the Ministry of Health in St. Kitts and Nevis, we believe that our work is sustainable. We will be carefully guided with the needs of the community in mind. By working directly with the Ministry of Health through this program, we hope we can determine why these primary care facilities are underutilized and provide data to the Ministry of Health for use in future health promotion programs.

IV. Assessment

a. Intended Impact (state those who will benefit)

Potential Benefit to subjects and others

There are no direct benefits to study participants with the exception of the small stipend ($5 or $20 US) or food and beverage. However, indirect benefits to participants an enhanced patient/provider relationship, improved perception of the quality and accessibility of prenatal or primary care, and better individual attention to disease prevention and health promotion. Indirect benefits for participants include potential improvements in the provision of primary care and/or prenatal care in St. Kitts and Nevis.

Importance of Knowledge to be Gained

The importance of the knowledge to be gained is manifold. Though there is minimal direct benefit to the participants, the community and country of St. Kitts and Nevis will benefit largely in terms of new data to inform and guide potential health system changes and promotional programs to enhance uptake of prenatal and primary care services. In addition to benefits to St. Kitts and Nevis, the professional knowledge gained will inform future studies that can be translated for use in areas of the United States where prenatal and primary care uptake is poor. The knowledge gained will also contribute to evaluating where potential barriers exist in meeting the Millennium (maternal-child health) Development Goals.

B. Process & Impact Assessment Criteria (Instruments, timelines, stats)

Instruments

A three part-survey will be used to gather information in the following three areas: demographic data; knowledge, attitudes, and practices data; and health service utilization data (Appendix A). Forms used to guide focus group discussions and interviews are also included in Appendix B.

a. Demographics Form
b. KAP Survey
c. Utilization of Services Survey
d. Focus Group Guide (Maternal Health)
e. Interview Guide (Maternal Health)

Statistical Analysis

Quantitative, survey data analysis will be conducted using Excel spreadsheets and Statistical Package for Social Sciences (SPSS). Data entry will be conducted by the undergraduate students and will be "double-entered" on separate spreadsheets by separate team members to ensure accuracy of data transfer. The two final spreadsheets will be compared for accuracy and any omissions or differences will be investigated and corrected. Preliminary data analysis, using SPSS, will include descriptive statistics to analyze participant characteristics, tests of baseline group equivalence (t-tests and chi-square), Pearson's correlations between group characteristics and Knowledge, Attitudes, and Practices (KAP) and Utilization variables, ANOVA (analysis of variance) and a search for potential covariates.

Qualitative data analysis will proceed in a step-wise manner using the Hermeneutic circle (Cohen, Kahn, & Steeves, 2000) and NVIVO software. Following Kockelmans' Canons, data will be analyzed using these specific techniques:

1) Data from audio recordings will be transcribed.
2) Transcripts will be prepared by a professional transcriptionist trained in the responsible conduct of medical research
3) Written data will be read thoroughly for data immersion
4) Strips will be identified, numbered, and placed into separate documents (Agar, 1983)
5) Strips will be placed into categories based on similarities,
6) Categories will be organized into themes, and
7) Themes will be organized into an overall description.

At each step of analysis, all of the data including written notes and transcripts will be re-read so the PI can return to immersion in the full-text. The emergent themes and overall description will be compared to themes that have been previously identified in the literature. Finally, the themes will be validated by the women, providers, and policy makers involved in the data collection phase through a final site presentation for review and feedback. The PI will present findings to the Kittitian participants after data collection is complete and after all data have been coded and analyzed, using a preliminary report of findings. Descriptive data will be summarized using Statistical Package for Social Sciences (SPSS).

c. Deliverables (documents/materials to be delivered at project end)

Documents to be delivered at project end include the following:

1. A summary statistical analysis of survey data to the St. Kitts Ministry of Health

2. A summary paper of themes emerging from qualitative data analysis to the St. Kitts Ministry of Health
3. A formal presentation of research and findings presented to the St. Kitts Ministry of Health.
4. A formal presentation of research and findings by Jamela M Martin to her Doctoral Dissertation Committee.
5. A formal presentation of research and findings by the undergraduate group and Ms. Martin at the Jefferson Public Citizens annual conference at University of Virginia.
6. A publication of research and findings in *Public,* the official publication of the Jefferson Public Citizens group.
7. Two additional publications of research and findings in scholarly, peer-reviewed, research and/or medical journals as submitted by Jamela Martin, co-authored by Patrick Martin and/or Ian Jacobs, for dissertation requirements.

d. Major Risks (factors that may delay project, risk reduction precautions)

Protection of Human Subjects

Risk to Subjects

1. Human subjects involvement and characteristics, and design

Human Subject Committee approval will be sought from the University of Virginia Internal Review Board (IRB) and the St. Kitts and Nevis Ministry of Health prior to study inception. Debriefing of providers at the community health centers and JNF Hospital will then be conducted. This debriefing will include a review of the study purpose, procedures, and recruitment plan. Recruitment flyers will be placed in the Women's Center units at local hospitals, in the community clinics, and other public areas such as community center and/or grocery store bulletin boards. Interested participants may contact the PI and community center/hospital staff can notify the PI of any potential participants who meet the study criteria.

2. Sources of Materials

All information gathered will only pertain to the current knowledge, beliefs, and practice of prenatal care and primary care in St. Kitts and Nevis. This information, though gathered from participants, participant observation, and field work will not include any personal identifiers. Material forms will include survey forms, field notes, handwritten notes from focus group discussions, photographs (buildings, equipment, and health centers), photocopies, and audio recordings. Photographs will not include faces but include buildings, supplies, posters, educational materials, and other items deemed related to the provision of prenatal or primary care. Photocopies will include any historical information about island culture and/or medical practices that can be found in hospital archives, the library, the local nursing school, and the cultural center. Audio recordings will be used to ensure the accuracy of transcription during focus groups and interviews. Participants will be given an alias on a name badge to prevent the use of proper names during recorded sessions.

3. Potential Risk

This research study presents minimal risk to study participants. Potential social risk includes the possibility of social isolation after presenting opinions that may be unfavorable to the Ministry of Health. Other risks include psychological risk of believing that a difference in care was received during previous visits or will be received in the future. There are no physical or legal risks to participants. A loss of confidentiality would put participants at social or psychological risk since

identifiable medical information would be at stake. Information will be de-identified to limit this risk. Data will be hand-carried in a locked bag between countries.

Adequacy of Protection Against Risk

1. Informed consent

Informed consent and further explanation of the study purpose and procedures will be conducted by the principal investigator with each potential participant prior to inclusion in the study. Surveys will be collected anonymously, and surveys will be prepared with a study identification number on the top of each sheet. Focus group and interview-enrolled participants will be given a four-digit identification number and identifying information will be removed from the data. Information regarding the recruitment process, including enrollments, refusals, withdrawals, and ineligibles, will be recorded and entered into spreadsheet software. Data translation and analysis will be conducted using Statistical Package for Social Sciences (SPSS) and NVivo. Any initial documents with patient identifiers will be destroyed immediately after data analysis, and the remaining study documents will be kept in the P.I.'s locked office.

2. Protection against Risk

Participants in the study will be given an alias during recorded focus group sessions, and all recordings will be kept in the possession of the principal investigator. Though the potential exists that voices could be recognizable in such a small community, the principal investigator resides outside of the study country (study documents, recordings, data will be kept in the United States) and thus the risk of a confidentiality breach is low. Study documents for the implementation phase will be de-identified and given a unique study identifier to greatly minimize the risk of loss of confidentiality.

C. Financial Issues (discussion of cost projections, disclosures, etc.)

Minimal research costs will be incurred for this project. As this is primarily a dissertation study, with an undergraduate research component, projected costs have been kept to a minimum. A majority of the research-related costs will be incurred from airfare, accommodations, meals, and transportation. The research team plans to compensate participants for their time, and the tentative plan is to provide the following: a small gift or gift certificate (worth <$5 US) to survey participants; food and non-alcoholic beverages to focus group participants; and a small gift certificate or monetary contribution to interview participants (worth <$20 US).

The research team has received prestigious awards from two University of Virginia organizations: The Jefferson Public Citizens Group and the Center for Global Health. The award, totaling $37,000 will be primarily used for travel-related expenses for the research team of 7 people. Funds in excess of travel costs will be used towards the research related expenses as mentioned above and research supplies (paper, tape recorders, pens/pencils, notebooks, photocopies, etc.)

D. Ethical Issues (discuss potential pitfalls, measures taken, etc.)

Potential limitations for this study include the following: selection bias. Selection bias is a potential limitation of the study since people who choose to participate may represent a certain subset of the population. The strategy to overcome selection bias for surveys is to visit many of

the parishes, community health centers, and churches on each island to obtain a variety of participants. Additionally, the small stipend for survey completion may encourage those who would not typically participate to complete the survey and provide their opinions. The strategy to overcome potential selection bias for the prenatal care arm is to conduct three separate focus groups for a variety of perspectives and to validate themes with the culture specialist. There is a possibility that study participants may come to rely upon the PI for advice regarding their pregnancy. This presents a potential limitation in that, in the case of an emergency, the participant may try to contact the PI instead of proceeding with their usual care providers. To minimize this risk, all participants will be informed, during the consent process that she should continue to seek medical care from her regular provider while participating in the study. Participants will be instructed to call an ambulance or visit the closest emergency department for emergencies.

E. Professional Background of Applicant(s)

Jamela M. Martin, MSN, RN
PhD Student
University of Virginia, School of Nursing
PO Box 800785
Charlottesville, VA 22908
Email: jnm4q@virginia.edu

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
North Carolina State University, Raleigh NC	BA	2000	Health Care Administration-Interdisciplinary Studies
University of Virginia, Charlottesville VA	BSN	2004	Nursing
University of Virginia, Charlottesville VA	MSN	2010	Advanced Practice Nursing
University of Virginia, Charlottesville VA	Certificate	2010	Pediatric Nurse Practitioner
University of Virginia, Charlottesville VA	PhD	2013 (planned)	Nursing

Positions and Honors

ACTIVITY/OCCUPATION	From	To	FIELD	INSTITUTION/COMPANY
Associate, Health Information Management	2000	2002	Administrative	Rex Hospital
Patient Care Tech	2003	2004	Orthopedics	University of Virginia
NICU Nurse I	2004	2005	Nursing	Piedmont Hospital
NICU Nurse II	2005	2008	Nursing	Piedmont Hospital
Graduate Teaching Assistant	2008	Present	Nursing Education	University of Virginia
Pediatrics Clinical Instructor, CNL & BSN Programs	8/10	Present	Nursing Education	University of Virginia
Research Assistant	2010	Present	Nursing Research	University of Virginia

Academic and Professional Honors
Dean's List, North Carolina State University—1999-2000
Dean's List, University of Virginia—2002-2004
Undergraduate Honors Clinical, University of Virginia--2004
Graduate with Distinction, University of Virginia--2004
Jefferson Public Citizen, University of Virginia--2012
Center for Global Health Scholar, University of Virginia-2012

Awards
International Committee Travel Award, $1500, Summer 2009
Center for Nursing Research Student/Professor Collaboration Award, $2000, Summer 2010

The University of Virginia Jefferson Public Citizens Award *funded jointly with* the University of Virginia Center for Global Health Award, $12,500, Spring 2012

Professional Societies
Golden Key International Honor Society--Member, 2003 to present
Sigma Theta Tau Nursing Honor Society--Member, 2004 to present
Doctoral Nursing Student Organization—Member, 2008 to present
Southern Nursing Research Society—Member, 2008 to present
National Association of Neonatal Nurses—Member, 2008 to present
Doctoral Nursing Student Organization—Social Chair, 2009 to 2010
Doctoral Nursing Student Organization—Secretary, 2011 to present

Committees/Service
Search Committee, Associate Dean for Academic Programs, 2011
Annual Volunteer, Charlottesville Community Health Fair, 2008-2010

A. Publications/Presentations

Publications
Martin, J. (accepted). 2011. What does it mean to use intuition in nursing? Towards an understanding using concept analysis. *Journal on Nursing*.

Martin, J. (in progress). *Non-financial barriers to service utilization in pregnant women*. To be submitted for publication in Spring 2012.

Martin, J. (in progress). *Prenatal care and birth outcomes in the West Indies*. To be submitted for publication in Spring 2012.

Presentations
Parker, B., Anderson, S. & **Martin, J.M**. *Sexual Violence in South Kivu, DRC.* Center for Nursing Research Forum, University of Virginia, February 2010.

Local/Regional/National Presentations
Martin, J.M. & Parker, B**.** 2011. *Lessons from the Congo: Conflict, Sexual Assault, and the Displaced Child.* Poster submitted for UVA Presidential Inauguration Poster Competition.

Martin, J.M. & Parker, B. 2001. *Lessons from the Congo*: *Conflict, sexual assault, and the displaced child.* Presented at the Rural Nurses Organization Annual Conference, Binghamton, N.Y. October, 2011.

Guest Lectures
Clinical Abdominal Assessment, NUCO 323, Client Assessment, Fall 2008
Neonatal Intensive Care Nursing, NUCO 1200 Intro to Nursing, Fall 2008
Neonatal Intensive Care Nursing, NUCO 1200 Intro to Nursing, Spring 2009
Neonatal Intensive Care Nursing, NUCO 1200 Intro to Nursing, Fall 2009
Transculturalism and Diversity in Nursing, NUCO 4620 Current Issues, Spring 2010
Neonatal Intensive Care Nursing, NUCO 1200 Intro to Nursing, Spring 2010

NICU Nursing-Past and Present, NUCO 1200 Intro to Nursing, Fall 2010
Transculturalism and Diversity in Nursing, NUCO 4620 Current Issues, Spring 2011
NICU Nursing-Past and Present, NUCO 1200 Intro to Nursing, Spring 2011
Creating a Professional Nursing Poster, USEM 1570 Univ. Seminars, Spring 2011
NICU and PICU Nursing, NUCO 1200 Intro to Nursing, Fall 2011
Global Health Nursing Research, GNUR 6052 Epidemiology and Global Health, Fall 2011

A. Research Experience

Research Projects

2008 Research Assistant, *Continuity of Care in the NICU*, PI-Elizabeth Epstein, PhD, RN
2008 Graduate Assistant, Center for Nursing Research, Various Projects
2009 Graduate Student Project, *A Needs Assessment of Children in the Congo*
2010 Research Assistant/Undergraduate Student Research Mentor, *Intimate Partner Violence*, PI-Kathryn Laughon, PhD, RN
2010 Project Coordinator, *Teen Survivorship Study,* PI-Patricia Hollen, PhD, RN, FAAN
2011 Research Assistant, *Teen Asthma Study*, PI-Mary O'Laughlen, PhD, RN

Conferences Attended

2005, Piedmont Hospital and Mercer University, CHL Research Conference, Atlanta, Ga.
2006 National Association of Neonatal Nurses, Annual Conference, Chicago, IL.
2009 Southern Nursing Research Society, Annual Conference, Baltimore, MD
2009 School of Nursing Strategic Planning Summit, University of Virginia, Charlottesville, Va
2011 Rural Nurses Organization, Annual Conference, Binghampton, New York
2012 Southern Nursing Research Society, Annual Conference, New Orleans (planned)

Research-Related Presentations Attended

Sept. 2009 UVA Center for Nursing Research Forum, Health and Justice in Rwanda, B. Parker
Nov. 2009 UVA Center for Nursing Research International Forum, Water and Health in Limpopo
Province, T. Cunningham, R. Dillingham
Feb 2010 Center for Nursing Historical Inquiry Forum, "When the City is a Great Field Hospital":
Lillian Wald and the Influenza Epidemic in New York City, 1918. Arlene Keeling
Fall 2010, Center for Nursing Research Forum, Baby BEEP, Linda Bullock
Fall, 2010, Center for Nursing History Forum, Grand Opening
Jan. 2011, Center for Nursing Research Forum, Intimate Partner Violence Collaboration, Melanie Kempf
Feb. 2011, Center for Nursing Research Forum, Innovative Solutions to Societal Problems: Prevention of Pediatric AIDS in Africa, Chandice Covington
Feb. 2011, Center for Nursing Research Forum, Experiences as a Fulbright Scholar, Janice Yoo
Mar. 2011, UVA Medical Center Hour, Mindfulness and Compassion Practice, Susan Bauer-Wu
Apr. 2011, Using Community-based Participatory Approaches (CBPA) to Reduce Infant Mortality, Advancing Health Equity, UVA MPH Program
Apr. 2011, Lessons Learned: Teaching, Research, and Service in Nicaragua, Emma McKim Mitchell

Marcus L. Martin, MD

Office for Diversity and Equity, University of Virginia
P.O. Box 400881, Charlottesville, VA 22904
Telephone: (434) 243-2079, Fax: (434) 243-2091, Email: mlm8n@virginia.edu

Professional Preparation

North Carolina State University	Pulp & Paper Technology	BS, 1970
North Carolina State University	Chemical Engineering	BS, 1971
Eastern Virginia Medical School	Medical Degree	MD, 1976

Appointments

2011-Present Vice President and Chief Officer for Diversity and Equity, University of Virginia
2011-Present Board of Trustees Kenan Institute for Engineering, Technology & Science, North Carolina State University
2009-Present Director, UVA in St Kitts and Nevis January- term Program
2006-2009 Assistant Dean, School of Medicine, University of Virginia
2001-2002 President, Society for Academic Emergency Medicine
1997-1999 President, Council of Emergency Medicine Residency Directors
1996-2006 Professor and Chairman, Department of Emergency Medicine, University of Virginia
1995-1996 Acting Chairman, Department of Emergency Medicine, Medical College of Pennsylvania and Hahnemann University
1992-2002 Oral Board Examiner, American Board of Emergency Medicine
1992-1995 Vice Chairman, Department of Emergency Medicine, Medical College of Pennsylvania
1990-1995 Co-Director, Combined EM/IM Residency Program, Allegheny General Hospital, Medical College of Pennsylvania
1991-1995 Board of Visitors, North Carolina State University
1984-1995 Residency Director, Emergency Medicine, Allegheny General Hospital
1977-1978 General Medical Commissioned Officer, Indian Health Service
1976-1977 Commissioned Officer, U.S. Public Health Service

Publications Select

Martin, ML, Snyder, AE, Faulkner, MS. Guest Editors. Proceedings of the U.Va. in St. Kitts and Nevis Program. The Journal of Race and Policy, Volume 7, Number 1; Spring/Summer 2011.
Martin, PA, Martin, ML, Faulkner, MS. Overview of Health Care in St Kitts and Nevis. The Journal of Race and Policy, Volume 7, Number 1, pages 15-21; Spring/Summer 2011.

Wang, M, Gerling, G, Moyer Childress, R, and Martin, ML. (2010). "Quantifying Palpation Techniques in Relation to Performance in a Clinical Prostate Exam." *IEEE Transactions on Information Technology in Biomedicine*, 14(4), 1088-1097.
Wang, M, Gerling, G, Moyer Childress, R, and Martin, ML. (2010). "Using a Prostate Exam Simulator to Decipher Palpation Techniques That Facilitate Abnormality Detection Near Clinical Limits." *Simulation in Healthcare: The Journal of Society for Simulation in Healthcare*, 5(3), 152-160.
Martin, ML, Hecker, J, Clark, R, Frye, J, Jehle, D, Lucid, EJ, Harchelroad, F. (1991). "China White Epidemic: An Eastern United States Emergency Department Experience." *Annals of Emergency Medicine,* 20(4), 158-164.
Martin, ML. (2000). "The Value of Diversity in Academic Emergency Medicine." *Academic Emergency Medicine*, 7(9), 1027-1031.
Gerling, GJ, Rigsbee, S, Moyer Childress, R, Martin, ML. (2009). "The Design and Evaluation of a Computerized Physical Simulator for Training Clinical Prostate Palpation Skills." *IEEE Transactions on Systems, Man, and Cybernetics – Part A: Systems and Humans*, 39(2), 388-403.
Self, WH, Mattu, A, Martin, ML, Holstege, CP, Preuss, J, Brady, WJ. (2006). "Body Surface Mapping in the ED Evaluation of the Patient with Chest Pain: Use of the 80-Lead Electrocardiogram System." *The American Journal of Emergency Medicine,* 24(1), 87-112.
Martin, ML, Leonard, M, Allen, S, Botchwey, N, Carney, M. (2004). "National Highway Traffic Safety Administration (NHTSA) Notes: Improving Traffic Safety Among Black Communities." *Annals of Emergency Medicine*, 44(4), 413-414.
Martin, ML, Snyder, AE, et al. (2011). "Public Health and Disaster Preparedness." *The Journal of Race and Policy*, 7(1). Forthcoming, Fall 2011.
Martin, ML, and the Academic ED SBIRT Research Collaborative. (2007). "An Evidence-Based Alcohol Screening, Brief Intervention and Referral to Treatment (SBIRT) Curriculum for Emergency Department (ED) Providers Improves Skills and Utilization." *Substance Abuse*, 28, 79-92.
Shukla, A, Kline, D, Cherian, A, Lescanec, A, Rochman, A, Plautz, C, Kirk, M, Littlewood, KE, Custalow, C, Srinivasan, R, Martin, ML. (2007). "A Simulation Course on Lifesaving Techniques for Third Year Medical Students." *Simulation in Healthcare,* 2(1), 11-15.

Synergistic Activities

- HRD 07-03554 LSAMP (Louis Stokes Alliances for Minority Participation) Virginia-North Carolina Alliance. PI: ML Martin; Co-PI: C. Vallas, L. Columbus
- Kenan Institute for Engineering, Technology, & Science Board of Trustees
- Academy of Distinguished Educators Grant (U.Va.), "Physical Simulators for Training Clinical Palpation Skills." PI M. Martin. Co-PIs: Greg Gerling, Ph.D., U.Va. Department of Engineering; Reba Childress, RN, U.Va. School of Nursing
- The Development of Prostate Palpation Skills Through Simulation Training May Impact Early Detection of Prostate Abnormalities and Early Management, US Dept of Defense

Cancer Research Program. G. Gerling,(Systems Engineering) M. Martin (Medicine) R Childress (Nursing)

- U.Va Center for the Chemistry of the Universe, National Radio Astronomy Observatory, U.Va Systems Engineering, VA-NC Alliance Summer Research Program

Collaborators & Other Affiliations

(i) Collaborators *(past 48 months)*

L. Bartelt (U.Va.), W.J. Brady (U.Va.), M. Faulkner (U.Va.), J. Fuentes (Pennsylvania State University), G. Gerling (U.Va.), H. Jenkins (Edward Via College of Osteopathic Medicine), T. Krupski (U.Va.), P. Martin (Ministry of Health, St. Kitts and Nevis), B. Mehring (U.Va.), R. Moyer Childress (U.Va.), R. Powers (U.Va.), S. Rigsbee (U.Va.), A. Shukla (U.Va.), A. Snyder (U.Va.), M. Wang (U.Va.), Tim Garson U.Va.(Grande Aides Program)

(ii) Graduate and Postdoctoral Advisors

Graduate Advisors: Robert Manning, Eastern Virginia Medical School (retired); Robert McCombs, Eastern Virginia Medical School (retired)

Principal Postdoctoral Sponsors: Richard Levy, University of Cincinnati (retired); Glenn Hamilton, Wright State University (retired)

(iii) Thesis Advisor and Postgraduate-Scholar Sponsor

(7 Graduate Students and 28 Postgraduate Scholars in past five years)

Graduate Students: Alyssa Bryant, Leigh-Ann Jones, Melat Lemma, Rebecca Obeng, Michelle Ramos, Sarah Rigsbee, Miki Wang

Medical Education Postgraduate Scholars: Brady Allen, Seth Althoff, Joy Aregood, Matthew Baird, Sarah Baker, Darren Beasley, Christina Burger, Catherine Cleaveland, Christopher Delk, Jeanette Ebarb, Kristina Espinoza, Tania Fasouliotis, Brian Fengler, Daniel Garcia, James Gerfin, William Harris, Benjamin Lehman, Pauline Meekins, Robin Naples, Justin Pearson, Claire Plautz, Julia Plunkett, Jeffrey St. Amant, Amita Sudhir, Lauren Taylor, Edward Walsh, David Whetstone, Ashley Wooters

Linda F.C. Bullock, PhD, RN, FAAN

Jeanette Lancaster Alumni Professor of Nursing
Director, PhD Program
Department: Family, Community & Mental Health Systems
Phone: (434) 982-1966
Email: lcb2u@virginia.edu
Fax: (434) 243-8372

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Texas A & M University, College Station, TX	BS	1971	Biology
Texas Woman's University, Houston, TX	BS	1983	Nursing, Magna Cum Laude
Texas Woman's University, Houston, TX	MS	1987	Community Health Nursing, Summa Cum Laude
University of Otago Medical School, Christchurch, New Zealand	PhD	1996	Public Health

Positions and Honors

Positions and Employment

1971-1976 Biological Laboratory Tech, National Cotton Pathology Laboratory, USDA
1976-1977 Research Tech, Dept. of Biochemistry, Baylor College of Medicine, Baylor, TX
1979-1981 Research Tech, Dept. of Cell Biology, Baylor College of Medicine, Baylor, TX
1983-1985 Staff Nurse Maternal Fetal Unit, Hermann Hospital, Houston, TX
1984-1985 Office Nurse (part-time), Dr. Delbert Myers, (General Pediatrics), Houston, TX
1985-1986 School Nurse, Burbank Middle School, Houston Independent School District, Houston, TX
1986-1987 Full-time graduate student, Texas Woman's University, Houston, TX
1987-1988 Clinical Associate, Texas Woman's University, Houston, TX
1991-1996 Part-time tutor, Christchurch Polytechnic Institute, Christchurch, New Zealand
1992-1995 HRC postgraduate scholar, Christchurch School of Medicine, University of Otago, New Zealand
1994-1995 Adjunct faculty, Dept. of Nursing, Texas Woman's University, Houston, TX
1994-1995 World Health Organization Visiting Fellow, Univ. of Texas School of Public Health, Austin, TX
1995-1997 Senior Lecturer, Christchurch Medical School, University of Otago, New Zealand
1997-2003 Assistant Professor, Sinclair School of Nursing, University of Missouri, Columbia, MO
2003-2007 Associate Professor, Sinclair School of Nursing, University of Missouri, Columbia, MO
2007-2010 Professor, Sinclair School of Nursing, University of Missouri, Columbia, MO
2010 - Professor Emerita, Sinclair School of Nursing, University of Missouri, Columbia, MO
8/2010-present Endowed Professor of Nursing, School of Nursing, University of Virginia,

Charlottesville, VA

Honors and Awards

1992-1995	Recipient, Post-graduate Scholarship, Health Research Council, New Zealand
1994-1995	Fellow, World Health Organization, Center of Health Promotion Research and Development, University of Texas School of Public Health
2000	Recipient, Margaret Woods Allen Outstanding Research Award, Sigma Theta Tau
2000	Recipient, Outstanding Undergraduate Clinical Faculty Award
2001	Recipient, Excellence in Research Award, Sinclair School of Nursing, University of Missouri
2003	Fellow, American Academy of Nursing
2004	Recipient, Margaret Woods Allen Outstanding Research Award, Sigma Theta Tau
2009	Recipient, Faculty-Alumni Award, University of Missouri

C. Selected Publications

McFarlane, J., Parker, B., Soeken, K., Bullock, L. (1992). Assessing for abuse during pregnancy. JAMA, 267: 3176-3178.

Curry, M., Durham, M., Bullock, L., Bloom, T., & Davis, J. (2006). Nurse case management for pregnant women experiencing or at risk for abuse. *JOGNN*, 35, 181-192.

Bullock, L., Bloom, T., Davis, J., Kilburn, E., & Curry, M. (2006). Abuse disclosure in private and Medicaid funded pregnant women. *Journal of Nurse Midwifery and Women's Health*, 51, 361-369. PMID: 16945784

Libbus, M.K., Bullock, L., Nelson, T., Robrecht, L., Curry, M.A., & Bloom, T. (2006). Abuse during pregnancy: Current theory and new contextual understanding. *Issues in Mental Health Nursing*, 27, 927-938.

Lutz, K., Curry, M., Robrecht, L., & Bullock, L. (2006). Double Binding: Abusive intimate partner relationships in pregnancy. *Canadian Journal of Nursing Research*, 38(4), 118-134. PMID: 17290958

Bhandari, S., Levitch, A.H., Ellis, K.K., Ball, K., Everett, K.D., Geden, E., & Bullock, L. (2008). Comparative analyses of stressors experienced by rural low-income pregnant women experiencing intimate partner violence and those who are not. *JOGNN*, 37: 492-501. PMID: 18754988

Eddy, T., Kilburn, E., Chang, C., Bullock, L., Sharps, P., and the DOVE Research Team. (2008). Facilitators and barriers for implementing home visit interventions to address intimate partner violence: Town and gown partnerships. *Nursing Clinics of North America*, 43: 419-435. PMID: 18674673

Ellis, K., Chang, C., Bhandari, S., Ball, K., Geden, E., Everett, K., & Bullock, L. (2008). Rural mothers experiencing the stress of intimate partner violence or not: Their newborn health concerns. *Journal of Midwifery and Women's Health*, 53:556-562

Bullock, L., Everett, K., Mullen, P.D., Geden, E., Longo, D., & Madsen, R. (2009). Baby BEEP: A randomized controlled trial of nurses' individualized social support for poor rural pregnant smokers. *Maternal and Child Health Journal*, 13, 395-406. PMID: 18496746

Tiwari, A., Fong, D.Y.T., Yuen, K.H., Yuk, H., Pang, P., Wong, J., Humphreys, J., & Bullock, L. (2010). A randomized controlled trial of an advocacy intervention to improve the mental health of community-dwelling abused women. *JAMA, 304*(5), 536-543.

Shay-Zapien, G., & Bullock, L. (2010). Intimate partner violence. *MCN: American Journal of Maternal Child Nursing, 35*(4), 206-212.
Rose, L., Bhandari, S., Marcantonio, K., Bullock, L., Campbell, J., & Sharps, P. (2010). Intimate partner violence in pregnant women: Mental distress and mental strength. *Journal of Mental Health Nursing, 31*(2), 103-111.
Bhandari, S., Bullock, L., Danis, F., Anderson, K., & Sharps, P. (2011). Pregnancy and intimate partner violence: How do rural, low-income women cope? International J. of Women's Health (in press).
Wong, J., Tiwari, A., Fong, D., Humphreys, J., & Bullock, L. (2011). Factors associated with depression in intimate partner violence in a Chinese community. *Nursing Research*, (in press).
Yu,M., McElroy, J., Bullock, L., & Everett, K. (2011). Unique perspectives of women and their partners using the Prenatal Psychosocial Profile (PPP) Scale. *Journal of Nursing Research*. (in press).

D. Research Support

Ongoing

(Bullock, Co-PI) 02/2006-11/2011
National Institutes of Health
Domestic Violence Enhanced Home Visitation Program (DOVE): subcontract with Johns Hopkins University
This study explores factors surrounding domestic violence and the efficacy of a nurse home visitation intervention to reduce violence in the lives of pregnant and postpartum women and their children.

5R01HD045542 (Bullock) 05/2005-04/2011
NIH/NICHD
Nursing Support: Better Infant Outcomes in Violent Homes
This study's primary aim is to determine if a nurse-delivered telephone social support intervention (weekly telephone calls as well as a 24-hour pager access to research nurses) which was delivered during pregnancy and/or 2-years post-delivery will improve maternal and infant outcomes, especially in homes where children are exposed to intimate partner violence.

Completed

MFFH -08-0305-TR-08 (Everett)
11/01/2008-10/31/2011
Department of Health and Human Services, Missouri Foundation for Health
MU Case and Smokebusters Phase II Tobacco Prevention and Cessation Initiative
This grant is to develop campus and community coalitions to effect policy changes in the area of tobacco cessation policy on the campus and in the community where the campus resides plus school-aged children between the 8th and 12th grade are targeted for smoking prevention with the Smokebuster program.
Completed Role: Co-Investigator

MRSG-04-207-01-CPPB (Everett) 07/2004-06/2009
American Cancer Society

Efficacy of Smoking Cessation Intervention for Expectant Fathers
This project specifically aims to compare the effect of two different interventions on smoking cessation rates of expectant fathers and to evaluate the effect of the smoking cessation by expectant fathers on the smoking behavior of their pregnant partners.
Role: Co-Investigator

64491 (Everett)
07/01/2008-12/31/2009
Robert Woods Johnson Foundation
Campus Community Alliances for Smoke-free Environments: Implementation Phase
This grant is to develop campus and community coalitions to effect policy changes in the area of tobacco cessation policy and screening for intimate partner violence in health care settings.
Role: Co-Investigator

MFFH -08-0229-TPC-08 (Everett)
07/01/2008-12/31/2009
Missouri Foundation for Health
Tobacco Change Policy: A Collaborative for Healthier Communities and States
This grant is to develop campus and community coalitions to effect policy changes in the area of tobacco cessation policy on campus and in the community where the campus resides.
Role: Co-Investigator

MFFH -05-1003-05 (Everett) 11/2005-10/2008
Missouri Foundation for Health
Mobilizing Tomorrow's Leaders for a Smoke-Free Missouri
This project's overall goal is to prevent youth from using tobacco and reduce exposure to smoking in the workplaces by having students, teachers, parents, and community leaders work together against these problems.
Role: Co-Investigator

(Everett)
01/2008-06/2008
Robert Woods Johnson Foundation
Campus-Community Alliance for Smoke-Free Environments: Tobacco Policy Change.
This grant is to develop campus and community coalitions to effect policy changes in the area of tobacco cessation policy and screening for intimate partner violence in health care settings.
Role: Co-Investigator

NR009198 (Finfgeld-Connett) 09/2005-08/2007
National Institutes of Health
Web-based Nursing Intervention for Female Problem Drinkers
This study uses a web-based treatment intervention for female problem drinkers. The treatment includes reference materials, self-assessment aids, goal-setting and decision-making exercises, ask-an-expert service, asynchronous and synchronous chats.
Role: Co-Investigator

Appendix D: Letters of Support

SAINT CHRISTOPHER AND NEVIS
MINISTRY OF HEALTH

OFFICE OF THE CHIEF MEDICAL OFFICER
Tel: 869 467 1270/1172/1173 Fax: 869 466 8574 email: skncmo@yahoo.com

November 30, 2011

To Whom It May Concern

On behalf of the Ministry of Health, St. Christopher (St. Kitts) and Nevis, I wish to indicate the Ministry's willingness to partner with the University of Virginia, Charlottesville, in a research project preliminarily entitled "Improving Primary and Preventative Care through Utilization of Community Health Centers in St. Kitts and Nevis".

The Ministry understands that Dr Marcus Martin will serve as faculty advisor to the principal investigators - Ania Giffin, Suraj Mishra, Grace Ball, Rachael Hanna and Kenny Perez - all of the said university.

The faculty advisor has been informed of amendments to the draft concept paper. Formal endorsement of the project is expected subject to the Ministry's receipt of an appropriately formatted project proposal on or before the 31st January 2012.

Patrick Martin MD
Chief Medical Officer

Jamela M. Martin, MSN, RN, PNP
University of Virginia
School of Nursing
PO Box 800782
Charlottesville, VA 22903

Ian Jacobs, MD
St Kitts Ministry of Health
PO Box
Basseterre, St. Kitts, W.I.

Dear Ms. Martin,

As the Head of Pediatrics for the Ministry of Health in St. Kitts, I am pleased to support your research proposal titled “m-Health in the West Indies: Examining the feasibility of a midwife led text messaging program to improve prenatal care uptake”.

This project is important to the Ministry of Health and our community specifically because over 95% of our infant mortality rate is the result of neonatal deaths. Though our infant mortality rate is an area where we would like to see improvements, the resources are not currently available to support providing care for extreme preemies as those resources are more effectively used towards other health priorities such as free antenatal care, immunizations, and wellness clinics. Although there is excellent access to public health hospitals and community health centers, the Ministry of Health would like to see more residents accessing and utilizing the universal free health care more often. We intend to focus current efforts on health promotion and disease prevention in a more proactive (outreach) manner.

We would really appreciate your views, and those of your supervisors, on cost-effective interventions we can make to have a meaningful impact on the health of our pregnant mothers and the morbidity and mortality of our neonates. An excellent way to approach this issue is to examine ways to encourage our pregnant mothers to utilize the prenatal care services to develop healthier pregnancies. The view of experienced scientific outsiders can only improve our product, and we welcome your efforts.

I am grateful for the opportunity that the National Institutes of Health is providing with this grant, and I strongly recommend the awarding of this grant to you and your collaborators. I am happy to remain in close contact with you via phone and/or email throughout the duration of the project, and I look forward to working with you in person during your visits to St. Kitts.

Best of luck with your grant application!

Sincerely,

Ian Jacobs, M.D.

Appendix E. Recruitment and Interview Materials

Appendix E.1 Participant Recruitment Flyer

Flyer and Handout Template

UNIVERSITY of VIRGINIA

University of Virginia
School of Nursing seeks

Women (18 and up)
Pregnant or Recently Delivered a Baby

to participate in an interview about

your experience of pregnancy in *St. Kitts and Nevis.*

Time Duration: 1 hour
Compensation: $20 gift card or $20 U.S.

Contact Information:
For more information please contact:
- *Jamela Martin, MSN, RN*
- *Phone number:*_____
- IRB SBS # 2012-0176-00

***Principal Investigator*:**
Jamela M. Martin, MSN, RN
University of Virginia
Charlottesville, VA, United States

Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #	Pregnancy Study Contact: Jamela Ph #

Appendix E.2 Demographics Form

ID #:_____
Date:_____

Prenatal Care Utilization in St. Kitts and Nevis
Principal Investigator: Jamela M. Martin, MSN, RN

Address: Basseterre, St. Kitts

DEMOGRAPHICS FORM (DF)

Instructions: Please provide some background information about yourself and your family by **checking** (√) your response or writing your answer. If you do not care to answer a question, leave it blank.

---

1. What is your marital status?
   0) Single (never married) ____ 3) Separated or divorced _____
   1) Married_____ 4) Living with Partner____
   2) Widowed_____

2. What is the HIGHEST level of school you have completed or the highest degree you have received?
   0) Less than high school _____(How many years did you complete?____)
   1) Completed High School ____
   2) Trade certificate or vocational school diploma____
   3) College Certificate or community college diploma____
   4) Associates degree___
   5) Bachelor's degree___
   6) Master's degree___ (example: MA, MS, MEng, MEd, MBA)
   7) Professional or Doctoral degree___ (example: MD, DDS, JD, PhD, EdD, DVM)

3. What is the annual income in your household (in ECD)?
   1) $4,999 or less___ 7) $50,000-59,999___
   2) $5000 to 9,999___ 8) $60,000-$74,999___
   3) $10,000-19,999___ 9) $75,000-99,000___
   4) $20,000-29,999___ 10) $100,000 or more___
   5) $30,000-39,999___
   6) $40,000-49,999___

4. How many people live in your household? _____

5. What is your racial/ethnic affiliation?

   0) Black____ 4) White_____

1) Mulatto/Mixed____ 5) East Indian____
2) East Asian_____ 6) Other_____

5. Do you have children? (0)Yes_____ (1) No_____
   If yes, what are their ages? _____

6. Did you get prenatal care when you were pregnant?
   0) No____ 2) Yes-3 or 4 visits____
   1) Yes-1 or 2 visits____ 4) Yes-more than 4 visits____

7. Where did you deliver your child(ren)?
   0) Hospital____ 2) Emergency Room____
   1) Urgent Care Center____ 3) Clinic or Office____
   4) Other____

8. Are you currently pregnant?
   0) Yes____ 1) No____ 2) Don't know____

9. How far along are you?
   0) 0-3 months 2) 6-9 months____
   1) 3-6 months____ 3) Don't know____
   4) Not applicable____

10. If you are currently pregnant, how many prenatal care visits have you had?
    0) None 3) 3 visits____
    1) 1 visit____ 4) 4 visits____
    2) 2 visits____ 5) 5 or more visits____

11. Do you have private medical insurance?
    ___(0) Yes ___(1) No

Appendix E.3 Informed Consent for Pregnant and Postpartum Women

Project Title: Vulnerable populations in the Caribbean: Exploring women's experiences of pregnancy in St. Kitts and Nevis, West Indies.
Page 1

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study.

Purpose of the research study: The purpose of this study is to describe the experiences of pregnancy, prenatal care, and delivery from the perspective of the women, providers, and policy makers in St. Kitts and to document the barriers and facilitators to full community use of free prenatal care services.

What you will do in the study: For this study, you will be asked questions about pregnancy, prenatal care, and delivery in St. Kitts and Nevis. You may skip any question that makes you uncomfortable and you may stop this interview at any time. All information gathered will only pertain to the current knowledge, beliefs, and practice of prenatal care in St. Kitts and Nevis. During the interview, the questions and your responses will be audio recorded and the researcher will be taking written notes. Audio recordings will be used to ensure the accuracy of study notes during interviews, and notes/recordings will be destroyed after analysis of the data.

Time required: The study will require about 1 hour of your time.

Risks: This research study presents minimal risk to study participants. Potential social risk includes the possibility of social isolation after presenting opinions that may be unfavorable to the Ministry of Health. To limit this risk, an alias will be used for any quotes used in presentations or manuscripts and potentially unfavorable opinions will only be presented in aggregate. Other risks include psychological risk of believing that substandard care was received during previous pregnancies. There are no physical or legal risks to participants. A loss of confidentiality would put participants at social or psychological risk. Study documents will be de-identified to limit this risk.

Benefits: There are no direct benefits to you for participating in this research study. The study may help us understand how to provide the best care for pregnant women in St. Kitts and Nevis.

Confidentiality:
The information that you give in the study will be handled confidentially. Your information will be assigned a code number. The list connecting your name to this code will be kept in a locked file. When the study is completed and the data have been analyzed, this list will be destroyed. Your name will not be used in any report. Audio recordings of this interview will also be destroyed after the recording has been transferred into a transcript and the data have been analyzed.

Revision Date: 09/01/07

IRB-SBS Office Use Only		
Protocol #		
Approved	from:	to:
SBS Staff		

Project Title: Vulnerable populations in the Caribbean: Exploring women's experiences of pregnancy in St. Kitts and Nevis, West Indies.
Page 2

Voluntary participation: Your participation in the study is completely voluntary. The services or treatments you received from any clinics, centers, or hospitals will not be affected by your participation in this study.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty. Should you decide to withdraw from the study, audio recordings and notes from your interview will be destroyed.

How to withdraw from the study: If you wish to withdraw from the study, tell the researcher that you wish to stop the interview and withdraw from the study. There is no penalty for withdrawing. You will still receive full payment for the study. If you would like to withdraw after your interview is complete, please contact:

Jamela M. Martin, MSN, RN
University of Virginia, School of Nursing
Email: jnm4q@virginia.edu
Local phone: (*tbd)*
Home phone: 434-973-0510 (international calling fees may apply)

Payment: You will receive payment for your participation in this study. Payment will either be $20.00 (USD) cash or $20.00 (USD) gift card depending upon gift card availability.

If you have questions about the study, contact:
Jamela M. Martin, MSN, RN
School of Nursing, PO Box 800782 McLeod Hall
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 924-9022
Email address: jnm4q@virginia.edu

Linda F.C. Bullock, PhD, RN, FAAN
School of Nursing, PO Box 800782 McLeod Hall
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 982-1966
Email address: lcb2u@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.,
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu

Revision Date: 09/01/07

IRB-SBS Office Use Only		
Protocol #		
Approved	from:	to:
SBS Staff		

Project Title: Vulnerable populations in the Caribbean: Exploring women's experiences of pregnancy in St. Kitts and Nevis, West Indies.
Page 3
Website: www.virginia.edu/vpr/irb

Agreement:
I agree to participate in the research study described above.

Signature: _____ Date: _____
You will receive a copy of this form for your records.

Revision Date: 09/01/07

IRB-SBS Office Use Only		
Protocol #		
Approved	from:	to:
SBS Staff		

Appendix E.4 Interview Guide for Pregnant and Postpartum Women

ID #:_____
Date:_____

Prenatal Care Utilization in St. Kitts and Nevis
Principal Investigator: Jamela M. Martin, MSN, RN
Address: Basseterre, St. Kitts

INTERVIEW GUIDE (Mothers)

Time of Interview:
Place:
Interviewer:

Project Description Narrative: "Good afternoon/morning. Thank you for agreeing to participate in this interview. My name is Jamela Martin and I am a nurse researcher and doctoral student from the University of Virginia, School of Nursing. I am conducting a research project to better understand the needs of pregnant woman in St. Kitts. This part of the project includes questions for you about what it is like to be pregnant and deliver a baby in St. Kitts. Your input is very valuable and, again, thank you. Please feel free to share any information you feel comfortable with and leave out any information you do not feel comfortable sharing. I will be taking notes and recording this interview, but all information will be kept private and names will be omitted."

1) Please tell me about your pregnancy from beginning to end.

Interview Probes

2) When does a pregnant woman in St. Kitts typically go to her first prenatal visit?

3) What are some of the reasons why a pregnant woman may not seek healthcare during the pregnancy?

4) Who are the support people for a pregnant woman in St. Kitts?

5) Does this support encourage woman to obtain prenatal care?

6) Who provides the medical care for pregnant woman here?

7) Has anyone in your family or friends been pregnant and received care in St. Kitts? If so, where did they deliver?

8) What are some traditional medical practices that women practice during pregnancy? (for instance herbal treatments, teas, diet, home deliveries, self care)

9) What is the difference between receiving prenatal care at the community health center versus at a doctor's office?

10) What religious beliefs, cultural rituals, or stories about pregnancy are passed down from elders?

11) What challenges face women who are pregnant?

12) How do you stay healthy during pregnancy?

13) Why might a woman deliver at home?

Additional Notes:

Appendix E.5 Informed Consent for Healthcare Providers

Project Title: Vulnerable populations in the Caribbean: Exploring women's experiences of pregnancy in St. Kitts and Nevis, West Indies.
Page 1

Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study.

Purpose of the research study: The purpose of this study is to describe the experiences of pregnancy, prenatal care, and delivery from the perspective of the women, providers, and policy makers in St. Kitts and to document the barriers and facilitators to full community use of free prenatal care services.

What you will do in the study: For this study, you will be asked questions about pregnancy, prenatal care, and delivery in St. Kitts and Nevis. You may skip any question that makes you uncomfortable and you may stop this interview at any time. All information gathered will only pertain to the current knowledge, beliefs, and practice of prenatal care in St. Kitts and Nevis. During the interview, the questions and your responses will be audio recorded and the researcher will be taking written notes. Audio recordings will be used to ensure the accuracy of study notes during interviews, and notes/recordings will be destroyed after analysis of the data.

Time required: The study will require about 1 hour of your time.

Risks: This research study presents minimal risk to study participants. Potential social risk includes the possibility of social isolation after presenting opinions that may be unfavorable to the Ministry of Health. To limit this risk, an alias will be used for any quotes used in presentations or manuscripts and potentially unfavorable opinions will only be presented in aggregate. Other risks include psychological risk of believing that substandard care was received during previous pregnancies. There are no physical or legal risks to participants. A loss of confidentiality would put participants at social or psychological risk. Study documents will be de-identified to limit this risk.

Benefits: There are no direct benefits to you for participating in this research study. The study may help us understand how to provide the best care for pregnant women in St. Kitts and Nevis.

Confidentiality:
The information that you give in the study will be handled confidentially. Your information will be assigned a code number. The list connecting your name to this code will be kept in a locked file. When the study is completed and the data have been analyzed, this list will be destroyed. Your name will not be used in any report. Audio recordings of this interview will also be destroyed after the recording has been transferred into a transcript and the data have been analyzed.

Revision Date: 09/01/07

IRB-SBS Office Use Only		
Protocol #		
Approved	from:	to:
SBS Staff		

Voluntary participation: Your participation in the study is completely voluntary. The services or treatments you received from any clinics, centers, or hospitals will not be affected by your participation in this study.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty. Should you decide to withdraw from the study, audio recordings and notes from your interview will be destroyed.

How to withdraw from the study: If you wish to withdraw from the study, tell the researcher that you wish to stop the interview and withdraw from the study. There is no penalty for withdrawing. You will still receive full payment for the study. If you would like to withdraw after your interview is complete, please contact:

Jamela M. Martin, MSN, RN
University of Virginia, School of Nursing
Email: jnm4q@virginia.edu
Local phone: (*tbd)*
Home phone: 434-973-0510 (international calling fees may apply)

Payment: You will receive no payment for your participation in this study.

If you have questions about the study, contact:
Jamela M. Martin, MSN, RN
School of Nursing, PO Box 800782 McLeod Hall
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 924-9022
Email address: jnm4q@virginia.edu

Linda F.C. Bullock, PhD, RN, FAAN
School of Nursing, PO Box 800782 McLeod Hall
University of Virginia, Charlottesville, VA 22903.
Telephone: (434) 982-1966
Email address: lcb2u@virginia.edu

If you have questions about your rights in the study, contact:
Tonya R. Moon, Ph.D.,
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: www.virginia.edu/vpr/irb

Revision Date: 09/01/07

IRB-SBS Office Use Only		
Protocol #		
Approved	from:	to:
SBS Staff		

Project Title: Vulnerable populations in the Caribbean: Exploring women's experiences of pregnancy in St. Kitts and Nevis, West Indies.
Page 3

Agreement:

I agree to participate in the research study described above.

Signature: _____ Date: _____

You will receive a copy of this form for your records.

IRB-SBS Office Use Only		
Protocol #		
Approved	from:	to:
SBS Staff		

Appendix E.6 Interview Guides for Healthcare Providers

ID #:_____
Date:_____

Prenatal Care Utilization in St. Kitts and Nevis
Principal Investigator: Jamela M. Martin, MSN, RN
Address: Basseterre, St. Kitts

INTERVIEW GUIDE (Nurses)

Time of Interview:
Place:
Interviewer:

Project Description Narrative: "Good afternoon/morning. Thank you for agreeing to participate in this interview. My name is Jamela Martin and I am a nurse researcher and doctoral student from the University of Virginia, School of Nursing. I am conducting a research project to better understand the needs of pregnant woman in St. Kitts. This part of the project includes questions for you about what it is like to provide nursing care to pregnant women in St. Kitts. Your input is very valuable and, again, thank you. Please feel free to share any information you feel comfortable with and leave out any information you do not feel comfortable sharing. I will be taking notes and recording this interview, but all information will be kept private and names will be omitted.

1) What kinds of services do you provide to pregnant women at the community center?

2) What do you feel are the biggest challenges you face in providing care to pregnant women?

3) What is the community nurses' role in providing care to pregnant women?

4) What do you believe is the main health issue affecting pregnant women in St. Kitts?

5) What information or resources do pregnant women need to take care of their health?

Additional Notes:

ID #:_____
Date:_____

Prenatal Care Utilization in St. Kitts and Nevis
Principal Investigator: Jamela M. Martin, MSN, RN
Address: Basseterre, St. Kitts

INTERVIEW GUIDE (Officials)

Time of Interview:
Place:
Interviewer:

Project Description Narrative: "Good afternoon/morning. Thank you for agreeing to participate in this interview. My name is Jamela Martin and I am a nurse researcher and doctoral student from the University of Virginia, School of Nursing. I am conducting a research project to better understand the needs of pregnant woman in St. Kitts. This part of the project includes questions for you to help me understand the health care system, policies, and provider perspectives about pregnancy-related health care in St. Kitts. Your input is very valuable, and again, thank you. Please feel free to share any information you feel comfortable with and leave out any information you do not feel comfortable sharing. I will be taking notes and recording this interview, but all information will be kept private and names will be omitted.

1) What is the Ministry of Health's strategic plan regarding maternal-child health for the next 5-10 years?

2) What do you believe are barriers and facilitators to full use of prenatal care services?

3) From your perspective, what would need to occur to improve maternal-child health in St. Kitts?

4) What is the community nurse's role in providing care to pregnant women at the community centers?

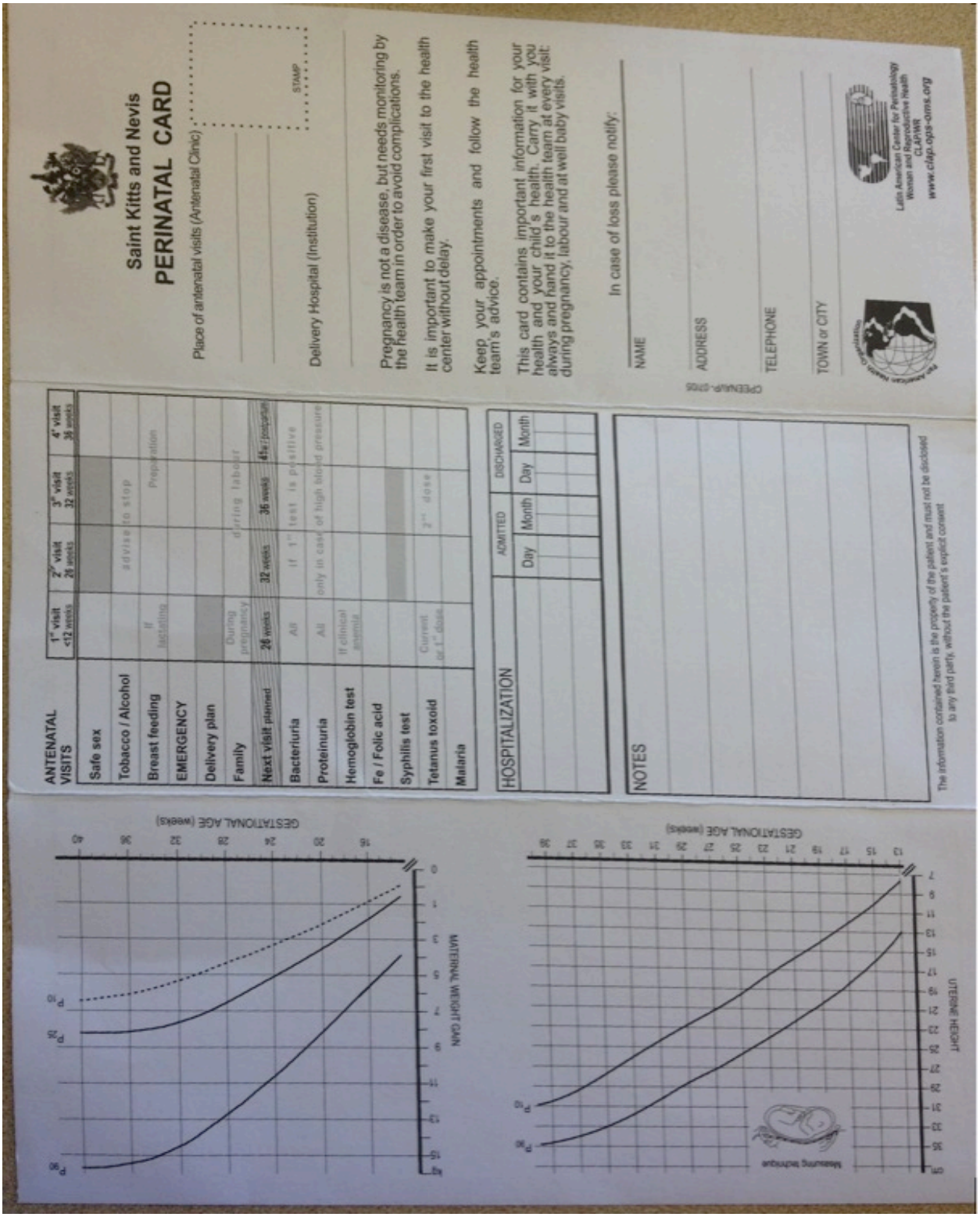
5) What is the physician's role in providing care to pregnant women at either the community center or the hospital?

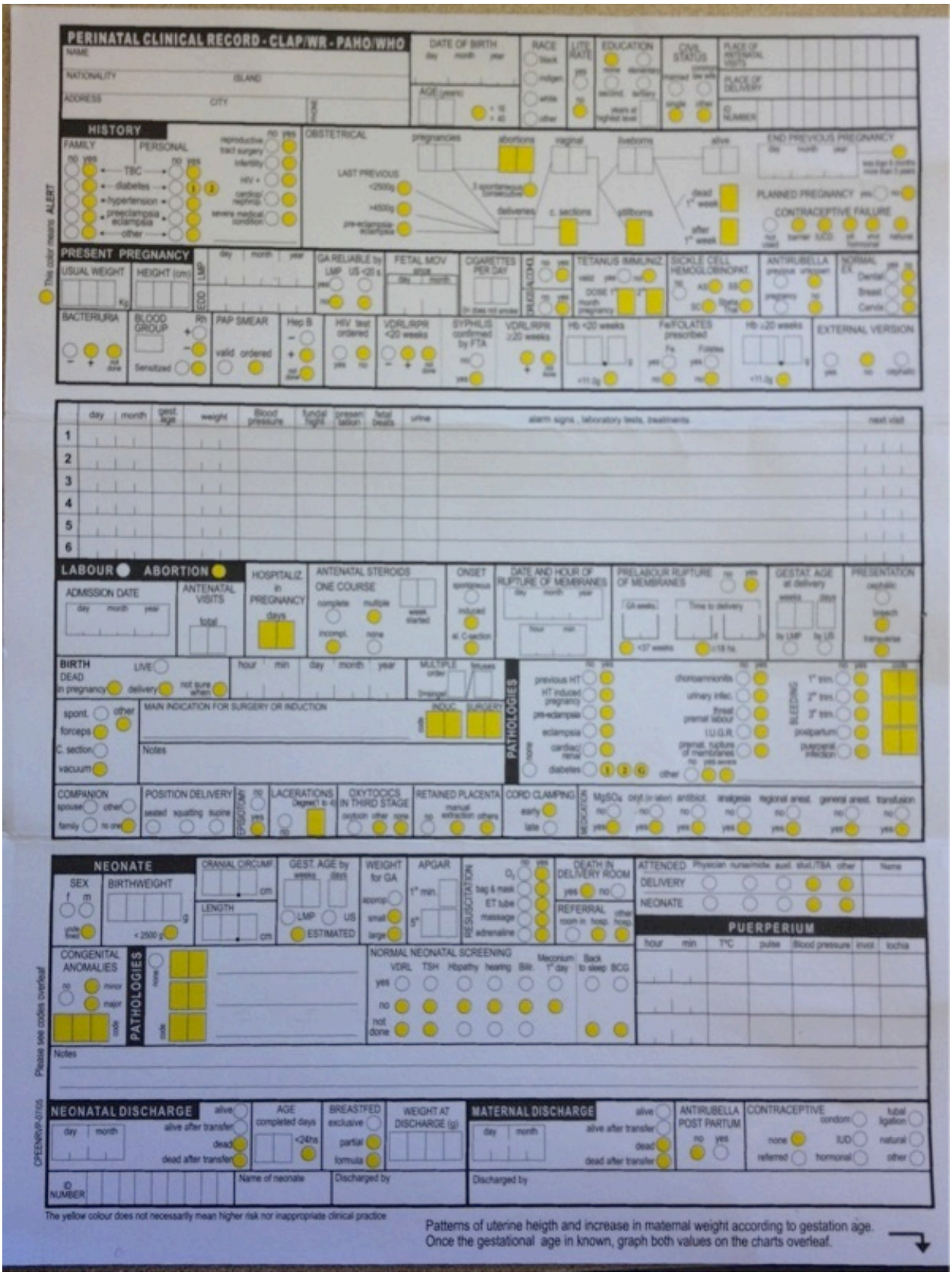
6) Can you help me understand the differences, if any, between receiving prenatal care at the community health center versus receiving prenatal care at a private physician's office?

7) What are the Ministry of Health's long-term goals for the community health centers?

Additional Notes:

Appendix F. St. Kitts and Nevis Perinatal Card




PERINATAL CLINICAL RECORD - CLAP/WR - PAHO/WHO
HISTORY
PRESENT PREGNANCY
LABOUR ABORTION
NEONATE
PUERPERIUM
NEONATAL DISCHARGE
MATERNAL DISCHARGE
Please see codes overleaf
The yellow colour does not necessarily mean higher risk nor inappropriate clinical practice
Patterns of uterine heigth and increase in maternal weight according to gestation age.
Once the gestational age in known, graph both values on the charts overleaf.

Appendix G: Manuscript from Concurrent Study

Utilization of Community Health Centers in St. Kitts and Nevis (*Public*, Spring 2013)

By Grace Ball, Ania Giffin, Rachael Hanna, Suraj Mishra, Kenny Perez, *and* Jamela Martin, MSN, RN

Abstract

Our Jefferson Public Citizens research team surveyed 498 residents on the two-island federation of St. Kitts and Nevis regarding utilization of community health centers (CHCs). This study is the first of its kind for St. Kitts and Nevis, and the results can be of use to the Ministry of Health for understanding the health of the islands' citizens as well as for enhancing the performance of the islands' CHCs. The results produced sample demographics, descriptive statistics, group differences and correlations regarding health attitudes, behaviors, and beliefs. Citizens of St Kitts and Nevis are generally aware of ways to remain in good health, but have difficulty translating this knowledge into action (P. Martin, CMO, St Kitts and Nevis Ministry of Health). This disconnect may be related to the weak correlation between participants' health knowledge and health practices, which may be a contributing factor in the underutilization of the CHCs.

Introduction

Almost 90% of the global burden of disease lies in developing countries, but only about 10% of current health promotion strategies research is focused on improving the health of these populations (Stevens 2004). Aggregate Latin American and Caribbean health data shows the health disparities to be related to a lack of understanding and education. Creation of targeted health promotion strategies that address these needs are necessary if global health goals are to be met (NINR, 2011).

St. Kitts and Nevis is a Federation of two islands located in the West Indies with a population of approximately 50,000. Seventeen community health centers (CHCs) serve this population, with the intentional location of each health center within three to four miles of each resident (OAS). Despite the abundance of CHCs, an interesting phenomenon of a "consumer clamor for high-tech care" may be occurring in St. Kitts and Nevis (Martin, 2011). This mounting desire for specialized care is perhaps important for understanding the underutilization of readily available and quality health clinics in St. Kitts and Nevis. Additional reasons for not using CHCs may include "an uninviting nature" or "skepticism about confidentiality." There is currently no national health insurance in place. However, the government subsidizes over 95% of the health system in St. Kitts and Nevis, providing free or nearly free care to all its citizens. Analysis of this underutilization trend, coupled with corrective intervention, may foster greater utilization of CHCs. The purpose of this study is to better understand the perspectives of Kittitian and Nevisian nationals regarding health knowledge, attitudes, and practices and to provide the Ministry of Health with data to support strategies for increasing utilization of community health centers. The views of the citizens of St. Kitts and Nevis on the health system were examined using a 52-item KAP survey.

Methodology

Survey Instrument

The pilot survey was comprised of two sections: a Demographics form and a combined Knowledge, Attitudes, and Behaviors and Health Utilization Questionnaire. We created a 52-item multiple choice and short answer survey for descriptive and inferential analyses. All KAP questions drawn from the CDC's *Behavior Risk Factor Surveillance Survey*, the *National Health Interview Survey*, and the *National Health and Nutrition Examination Survey*. This pilot survey is the first of its kind for this population, and the validity and reliability analyses are currently being conducted.

Data Collection

The surveys were conducted in public areas including ferry docks, bus stops, retail locations, and taxi stands in the city center and rural community centers. Participants were informed that their answers would be confidential and that there would be a $5 US compensation for survey completion. Verbal consent and confirmation of age (>18 years) were obtained. In total, 498 surveys were collected, 398 from St. Kitts and 100 from Nevis. These numbers were predetermined based upon a goal of surveying approximately 1% of the population from each island.

Analysis

Data entry was conducted through SelectSurvey. Analysis of the data was conducted with IBM's Statistical Package for Social Sciences and includes descriptive statistics to analyze participant characteristics, tests of baseline group equivalence, and correlations between participants' Knowledge, Attitudes, and Practices (KAP) and Utilization variables. A more in-depth data analysis is planned for Summer 2013 and will include additional tests of group differences, regression, and predictive modeling.

Results

Sample Demographics

Data on demographics is shown in Table 1. A small percent of the population maintained private medical insurance (29.1%). While 16.5% (n=82) participants did not wish to answer the question regarding annual income, 63.1 % of participants reported that they earn $29,999 East Caribbean Dollars (~$11,110 USD) or less annually. Forty-nine percent (n=244) of participants reported completion of high school with 32.8% reporting additional vocational, college, or professional education.

Table 1: Sample Demographics (n=498)

Variable	n (%)
Island	
St. Kitts	398 (79.9)
Nevis	100 (21.1)
Gender	
Male	212 (42.6)
Female	281 (56.4)
Marital Status	
Single	300 (60.2)
Other	194 (38.9)
Ethnicity	
Black	410 (82.3)
Mulatto	30 (6.0)
White	8 (1.6)
East Indian	12 (2.4)
Asian	4 (0.8)
Other	19 (3.8)

Descriptive Statistics

Fifty percent of participants responded that, in general, their health is either very good or excellent. Almost 70% reported that they have had their blood cholesterol checked at least once, and 75.5% of those surveyed reported that a doctor has never told them that they have high blood pressure. Males reported less physical activity and more frequent consumption of alcohol than females.

In regards to medical care received, 59% of those surveyed believe that they receive the best medical care at private offices, and 56% said that they normally go to a private doctor for non-emergency care. Although 38.4% of respondents stated that within the past 12 months there was a time when they needed to see a care provider but did not, only 33.3% reported that they avoided seeing the nurse or doctor whenever possible.

Approximately 1/3 of participants maintained their own private insurance, and 80.5% think that the government should offer medical insurance to all residents. In regards to how this private insurance should be funded, 38% said the money should come from the Value Added Tax (VAT).

There was a not a significant difference ($p=0.29$) in the amount of time since a participant's last visit to the CHC and their insurance status. There was also no significant difference ($p=0.4$) between a participant's insurance status and the participant's preferred site for care.

Correlations

We evaluated multiple relationships between knowledge, attitudes, and practices through categorization of each question into "type of question" (k*nowledge-related*, *attitude-related*, and *practice-related*). As this was a pilot survey, there is a possibility that some KAP questions may not be as valid or reliable for this population as they have been for other populations. As such, a psychometric evaluation of the survey is currently being conducted.

How does perceived health status correlate with how often one should visit their provider? How does perceived health status correlate with perceived quality of care at the CHCs? There was a weak ($r=-0.21$) correlation between perceived personal health status and attitudes about how often one should visit a care provider. There was, however, a significant ($p<0.001$) moderate correlation ($r=0.40$) between a person's perceived health status and perception of care quality at the CHCs. Those who perceived the care at community centers to be good or excellent also perceived their personal health status to be good.

In relating attitudes and practice, there was a significant ($p<0.001$) but weak correlation ($r=-0.19$) between participants' attitudes about care received at CHCs and how often the individual needed to see a provider but failed to do so in the past 12 months. For this sample, it would be difficult to predict a person's willingness to be seen based upon perceptions of community health center quality.

Correlation between knowledge and practices were examined using questions including: How does a person's knowledge of a chronic disease diagnosis (hypertension) correlate with how often they did physical activity? How does a person's perception of personal health status relate to the length of time since s/he last visited a community health center? For both of these relationships there were weak, non-significant correlations ($p=0.21$ and $p=0.32$ respectively).

Discussion

Those surveyed consisted of fairly equal numbers of male and female adults. Because of the Ministry of Education's subsidy of primary school and the very low illiteracy rate, we expected to have a fairly educated sample, which was the case. As expected, 30.1% ($n=145$) participants maintained private medical insurance obtained through employment or individually.

Interestingly, 80.5% of participants felt that the government should institute medical insurance coverage for all residents. It should be noted that a medical insurance policy is proposed (by the St. Kitts and Nevis government) as an addition to the free community and hospital care that is already being provided to all residents. The insurance would cover residents who require specialty care at private offices and other facilities that must be accessed off-island (e.g. hemodialysis). Although not included in the survey, we noted the concerns expressed by some participants about the lack of specialty care and technology.

We also expected that people who maintained private insurance would state a preference for private care but this was not the case. Another interesting correlation was found between perceived health status as good and perception of quality of care received at the community health centers as good or excellent. We expected there to be significant strong correlations among a participant's knowledge, attitudes, and practice. However, only certain questions demonstrated significant correlations and none of the correlations we have tested, thus far, are strong. There was very low correlation between a person's knowledge and practice, which we interpreted to mean that a person's health knowledge had very little influence on his or her health practices.

Limitations

We realized the importance of cultural context, as the wording and structure of some questions in the survey were occasionally misunderstood or misinterpreted. However, eleven medical and/or administrative professionals from St. Kitts and Nevis reviewed the survey for validity.

For example, residents are rarely, if ever, asked questions of ethnicity. Additionally, some participants were concerned about confidentiality, which could perhaps be explained by our affiliation with the Ministry of Health. Some of the questions, particularly those questions that required fill-in-the blank answers, contained some missing data. This can be contributed to several factors like wording, presumptions, and that the participant could not think of an answer, was confused by the format, or did not want to answer that particular question.

We did not include an age group question in the demographics, although we believe that we reached a wide range of ages in the survey sample. We attempted to survey a group representative of the demographics of the islands, but as with any survey, there was the potential for selection bias.

Implications

The results from this survey will be sent to the Ministry of Health to be used in assessing the utilization of community health centers. Our results should highlight areas that need improvement and areas of strength. In addition, the data will be useful in assessing the attitudes, behaviors and beliefs of its citizens towards their own health, to the CHCs and to the health care system.

Although our undergraduate team is graduating this May 2013, this pilot study has laid the foundation for future research. We hope that the relationships found between knowledge, attitudes, and practices will aid the Ministry of Health in creating new initiatives to better serve the health needs of the population. These initiatives may take the form of media campaigns, or general improvement of technologies available at CHCs. Our study is indicative of population parameters, as we reached about 1% of the population with our surveys. With feedback from citizens of St. Kitts and Nevis, our survey can be modified and reused to expand the study or to study more specific aspects of health care utilization in St. Kitts and Nevis.

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Biographies

Grace Ball is from Newport News, Virginia, and is a fourth year, pre-med student at the University of Virginia studying Classics.

Ania Giffin is from Chattanooga, Tennessee, and is a fourth year student at the University of Virginia studying Political and Social Thought

Rachael Hanna is from Great Falls, Virginia, and is a fourth year student at the University of Virginia studying Psychology and Bioethics.

Suraj Mishra is from Richmond, Virginia, and is a fourth year student at the University of

Virginia studying Human Biology and Economics
Kenny Perez is a December, 2012 graduate of the University of Virginia.
Jamela Martin PhD(c), MSN, RN, is from Charlottesville, Virginia, and is the JPC graduate student mentor and PhD student at the University of Virginia, School of Nursing.

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