From Breast to Bottle: The History of Bottle-Feeding among African American Mothers in North Carolina, 1900–1950

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Abstract

By the mid-twentieth century, breastfeeding was no longer the predominant pattern of infant feeding among black mothers, despite the fact that in the early twentieth century, the universal pattern of infant feeding was breastfeeding. Black mothers not only breastfed their children, but during a period in history, they not only breastfed their children, but served as wet-nurses to white infants if needed. By the end of the 1950s, and into the 1960s, the rate of breastfeeding had significantly decreased to as low as 25 percent among black mothers. How did this occur among these mothers, and who taught them about bottle-feeding? The purpose of this research was to identify, describe, and analyze the history of bottle-feeding among black rural mothers in North Carolina during the first half of the twentieth century.

Using traditional historical methods and a social history framework, the researcher placed black rural mothers in North Carolina within the larger social context of early twentieth century socio-political history of race, culture, and economics, with a focus on the role of the nurse as it relates to infant feeding. Primary sources for this project were obtained from the North Carolina State Archives Maternity and Child Health Division, the University of North Carolina History of Health Digital Collections, and the U.S. Children's Bureau Publications located at the University of Virginia Health Sciences Library Digital Archives.

Black rural mothers in the South lived economic and socially marginalized lives that prevented them from readily participating in mainstream federal health initiatives instituted during the early twentieth century. During the Sheppard Towner period, they received benefits of the program in a limited manner. Training of lay midwives was the

primary way that black mothers received benefits of the program. Nurses taught midwives safer obstetric techniques in hand washing, how to administer ophthalmic eye drops in infant eyes to prevent blindness, and to avoid invasive vaginal examinations during infant deliveries.

In 1935, the federal government created the Social Security Act, which established maternity clinics in rural communities, and in 1943, the federal government formed the Emergency Maternity Infancy Care Act that provided obstetric hospital care for soldiers' wives during World War II. Many rural black mothers received free hospital obstetric care that gave them access to modern infant feeding instructions. Hospital care provided these mothers infant education, and bottle-feeding training, which helped set in motion the trend of bottle-feeding. As mothers became knowledgeable about maternal education, and their economic resources improved, bottle-feeding became preferable to resolve infant feeding issues. Bottle-feeding gave mothers a way to balance work and infant feeding; in addition, it identified blacks with modern society, which they likely perceived elevated their social status in the dominant culture of modern society.

Contents

Dedication

To my parents, Charlie Layden, and Lottie Beatrice Bowman Lawson who instilled in me the value of faith, determination, and a strong constitution in the face of obstacles.

Chapter 1: Introduction

Today, black mothers bottle-feed at a higher rate more than any other race and ethnic group in America.[1] According to data from the Centers for Disease Control National Immunization Survey for 2013, among all U.S. mothers, non-Hispanic blacks initiated breastfeeding only at a rate of 66.3 percent, despite the fact that in the late nineteenth century the majority (90 percent) of black mothers breastfed.[2] In fact, during a period in black history, some mothers not only breastfed their children, but served as wet-nurses for white infants if necessary.[3] Contrary to ongoing efforts by health officials to reverse the trend of bottle-feeding among them, the question remains — how did this come about? The purpose of this study is to identify, describe, and analyze social, economic, and cultural factors that influenced black mothers to transition from breast to bottle-feeding by the mid-twentieth century with a major focus on the role of the nurse.

Background

During the late nineteenth century, affluent mothers in industrialized cites started bottle-feeding. These mothers believed they were unable to produce sufficient amounts of milk for their infant to the traditional period of one year.[4] Affluent mothers who chose not to breastfeed hired wet-nurses to provide human milk for their infants, but believed it was harder to find a suitable wet-nurse of excellent health, and wholesome moral qualities.[5] To make this decision easier for mothers physicians frequently assisted families in choosing wet-nurses. As suitable wet nurses became difficult to find,

physicians advised affluent mothers to bottle-feed instead; thus, bottle-feeding gained momentum in the early twentieth century among these mothers.

European immigrant mothers entered the country during this period, and when they arrived, families were at risk because of poor housing, and unsanitary living conditions in industrialized cities. They were plagued with overcrowded housing, inadequate and scarce food, and limited sources of employment, of which these conditions frequently compelled mothers to seek employment outside the home to support the family income. Mothers that worked outside the home with young children found it difficult to work and produce sufficient quality breast milk due to inadequate rest and nutrition after working long hours in factories. They either attempted to continue breastfeeding with whatever physical energies they could muster or chose to adopt bottle-feeding, which allowed for other family members or a neighbor to care and feed the infant in her absence.

Infants died excessively in cities during the early twentieth century, especially among European immigrants. In New York City, one out of every 10 infants born did not live to reach the first birthday.[6] Physicians and other health leaders attributed infant mortality to mothers' ignorance and poor nutrition.[7] Physicians believed that mothers lacked the knowledge needed to keep bottles clean, to prepare infant formula, assess how much to feed infants, and how to provide suitable clothing and fresh air to care for infants.[8] To offset this problem, nursing settlement societies, such as the Henry Street Nursing Settlement in New York, led by nurse Lillian D. Wald sent nurses into the homes of immigrant mothers to teach them how care for and safely prepare milk for infant feeding. Home visits led by nurses caught on, and New York's municipal health leaders

sent nurses into the homes of additional mothers to teach them infant feeding and assist them with other maternal resources.

During the mid to late nineteenth century, the rise of science influenced American culture.[9] Poor conditions in the cities caused health and civic leaders to question these conditions. Citizens, who identified themselves as progressives were often educated middle-class business and professional leaders who believed that they could utilize education and scientific knowledge as a tool to address the moral and physical decay in society. They desired to transform society, and sought ways to reduce outbreaks of illnesses, rid the accumulation of waste and filth in streets and homes, and improve the quality of the public's health, especially during times when epidemics would occur. They concluded that sanitary measures would improve health; thus, they enforced sanitary ordinances to clean streets, and remove waste. In addition, health leaders called for collection of birth and death statistics so health officials could accurately identify where sicknesses occurred to address these issues.[10]

New medical discoveries gave men and women the hope that they could control and protect health, which resulted in leaders looking to medicine and scientific intervention to help resolve health problems.[11] Progressive reform leaders perceived the need for federal assistance to address infant health due to the problem of infant mortality. The federal government's first effort to address this problem was Congressional legislation authorizing the creation of the Children's Bureau. (See Appendix A) In 1912, Congress created the Children's Bureau designed specifically for researching on all matters that pertained to children. The agency's first project was to study the problem of infant mortality.[12]

Later, in 1921, Congress passed legislation for the Sheppard-Towner Act to provide infant and maternal education to urban and rural mothers (See Appendix A). Nurses taught mothers about prenatal education and provided bottle-feeding training if needed. Concerning black mothers, nurses worked primarily with black lay midwives to train them in safer aseptic obstetric care, and to regulate the practice of midwives by registering them within the county in which they practiced their craft (See Appendix B).[13]

In 1935, the federal government passed legislation for the Social Security Act to relieve some of the economic hardship families experienced due to the Great Depression, and to establish prenatal and maternal health clinics in rural communities (See Appendix A). Black rural mothers often attended these clinics. Later, in 1943 during the Second World War, the federal government issued the Emergency Maternity and Infancy Care Act, which provided free obstetric hospital care to wives of selected enlisted men (Appendix A). Black mothers eligible for the program received free maternity and obstetric care in modern hospitals. Within these settings, nurses taught and modeled scientific maternal and infant care and taught and modeled bottle-feeding.

As the number of women entering the work force increased during the twentieth century, so did the use of bottle-feeding.[14] Mothers wanted to identify with modern ways of infant feeding, and the trend of women moving into the workforce demanded a less restrictive and confining pattern of infant feeding. In fact, the pattern of bottle-feeding increased with such intensity that by the end of the 1950s only 24 percent of black mothers were breastfeeding.[15]

Significance

Human breast milk is the "gold standard" of infant nutrition as it contains nutrients and proteins that protect infants from illnesses.[16] Infants nourished on breast milk have fewer sick days from ear and gastrointestinal infections.[17] Exclusive long term breast-feeding provides infants with both immunological and physiological benefits. They experience lower risk for atopic dermatitis, type 2 diabetes, sudden infant death syndrome, gastroenteritis, and respiratory illnesses.[18] Today, the American Academy of Pediatrics recommends that mothers exclusively breastfeed infants for the first six months and continue until 12 months or longer, even after starting complementary food.[19]

In addition to improved physiological infant health, there are maternal, economic, and environmental benefits to breastfeeding. Breastfeeding mothers experience quicker uterine involution, experience less post-partum bleeding, receive the benefit of birth spacing, and experience greater total body weight loss than do mothers who combine breastfeeding and formula feeding.[20] Breastfeeding mothers also reduce their risk of ovarian and uterine cancer.[21] Moreover, human milk provides economic and environmental savings to families and to the health care system. Through the elimination of milk and bottle purchases, breastfeeding can save families as much as $1500 per year.[22] If ninety percent of mothers exclusively breastfeed for six months, the health care system could save as much as $13 billion dollars yearly.[23] Infants who receive human milk have fewer visits to emergency rooms and doctor offices for illnesses and infections, which could save billions of dollars (an estimated $3.6 billion).[24]

Employees who breastfeed require less sick leave time off from work for physician visits compared to formula-fed infants, which results in greater savings for business employers.[25] In a cost analysis conducted by researchers Bartick and Reinhold

using 2007 dollars, the cost of common illnesses in infancy, including otitis media, gastroenteritis, and lower respiratory tract infections, indicate that of the $13 billion cost for illnesses, 17 percent ($2.2 billion) was due to direct medical costs; 9 percent was due to indirect costs.[26] In addition to the potential savings to the health care system, the environment reaps the added benefit of the elimination of waste due to cans, cartons, and bottles.

For these reasons and more, public health officials, the Surgeon General, the American Academy of Pediatrics, Healthy People 2020, and black breastfeeding advocacy and community groups recommend that all mothers (including black women) breastfeed.[27] Black breastfeeding advocacy groups provide black mothers with resources to encourage mothers to breastfeed. The social media black breastfeeding advocacy group *Black Breastfeeding 360°* provides mothers with resources for breastfeeding success. They provide black mothers with research, statistics, and literature on the breastfeeding experiences of other black mothers, which allows them the opportunity to listen to video diaries of mothers that breastfeed.[28] In addition, the community organization Black Mothers' Breastfeeding Association (BMBFA) of Detroit, Michigan, has the goal of reducing racial disparities among blacks as it relates to breastfeeding.[29] The organization uses a community approach to provide a program of services catered to black mothers within their community, ranging from peer counselors, doulas, and a black mother-led breastfeeding club. Breastfeeding peer counselors advise mothers on comprehensive issues concerning latching on, milk storage, and social barriers that may inhibit mothers from developing a breastfeeding lifestyle.

Doula programs improve infant health and breastfeeding success by providing pregnant women long-term linkages to a network of breastfeeding support during the pregnancy, birth, and early post-partum period.[30] Black breastfeeding clubs help promote breastfeeding success and reduce breastfeeding disparities by providing an outlet for black mothers to share their breastfeeding experiences, forge support relationships and learn more about breastfeeding. In addition, the BMBFA nonprofit organization improves breastfeeding success by providing breastfeeding support to service agencies interested in black maternal-child health by conducting annual seminars within the Detroit area. The organization's purpose is to expose service agency professionals to the most current culturally appropriate strategies, information, skills, interventions and models of public health that address the specific socio-cultural needs of black families related to breastfeeding.[31]

For the benefits of improved infant and maternal health, an improved health care system and society, this historical research thus becomes important. It is critical that we examine early twentieth century black mothers' social, political and cultural influences that led to bottle-feeding, and the role of the nurse in this change. According to Bentley, Dee, and Jensen, social and cultural factors influence decision making related to infant feeding.[32] Thus, context is important, and it is important to know if there are differences between the breast-feeding decisions made by low-income black mothers of the past compared to today's black mothers. Tracing the social history of black mothers' adoption of bottle-feeding could offer insights into their infant feeding experiences and highlight whether there are similarities and differences that we can learn today to promote breastfeeding among this target group. Conducting an analysis of the history of mothers'

transitions to bottle-feeding could be important to understanding some of the reasons why black mothers bottle-feed today.

A historical analysis of the history of bottle-feeding among black mothers and the role of the nurse is missing in nursing history; thus, this research becomes a valuable contributing piece in unraveling possible variables as to how and why bottle-feeding occurred. Improving rates of breastfeeding is a current health priority of health officials among this target population. The U.S. Surgeon General supports breastfeeding by soliciting health professionals, employers, families and communities to identify barriers that may inhibit women from successfully breastfeeding, whether within the hospital, the home, the community or the workplace environment.[33] Insight into the social factors that may have influenced black mothers to bottle-feed may provide a greater level of understanding in helping mothers reach improved breastfeeding goals. Breastfeeding is an important behavior pattern, which can positively affect the health of infants and mothers.

Methodology

The researcher used traditional historical methods with a social history framework to guide the questions for this research. A social history framework was best suited for this research because it fit the social structures of race, class, gender and the common marginalized individuals. Historian Patricia D'Antonio asserts that a social history framework is an appropriate framework for nursing history because it allows for the unveiling of events and experiences of individuals from the bottom up.[34] Some of the elements uncovered in this research were rural poverty, segregation, race and gender.

Data Management

The researcher managed the research by organizing data into a file directory of folders by topics and chronology according to primary and secondary sources. Data collection began after consulting the Institutional Review Board for Social and Behavioral Sciences at the University of Virginia (Fall 2014). The dissertation committee members assisted with research analysis by providing formative critique within their area of expertise on infant and maternal history, Progressive Era public health nursing, and southern black medical history. The researcher critically evaluated the sources of the primary and secondary data.

External Criticism

The writer obtained primary documents from state archives and university digital archives. The digital documents — journals, manuscripts, and pamphlets used for the study were dated from the period for the study; original copies of journals were produced in exact period wording. The journal authors and conference leaders were authentic experts in their fields of study, medicine, and nursing health leaders.

Internal criticism

The primary sources of journals, and pamphlets were accurate, the authors were credible and competent. Concerning bias, the primary sources were authentic and unbiased based on the context of the culture and period for the study, although in today's context, some of the writings would be biased.

Research Questions

1) What social, political, economic and historical factors influenced the development of bottle-feeding among black mothers in early twentieth century North Carolina?
2) What effect did the Sheppard-Towner Act have on reducing infant mortality among black infants in North Carolina?
3) How did black mothers learn about infant and maternal care that included bottle-feeding within a context of segregation and Jim Crowism, and what was the response of poor black mothers compared to black middle-class mothers?
4) What was the nurse's role among black mothers related to bottle-feeding?
5) What effect did the Social Security Act and the Emergency Maternal Infancy Care (EMIC) program have on black mothers in North Carolina related to bottle-feeding?

Sources of Data

The researcher obtained primary and secondary data from the following sources:

1. State Board of Health Administrative Services Central Files, Miscellaneous Correspondence and Folders 1934-1955 in (Box 1)

   Reports by M. Irene Lassiter, RN

   Problems Involved in Untrained Midwifery in the South
2. North Carolina State Archives, Maternity and Infancy Brief, Public Health Nursing and Infant Care in (Box 13)

3. The Lincoln Hospital records 1901–1988—located at David M. Rubenstein Rare Books and Manuscript Library Duke University Libraries. Annual Reports:
   Lincoln Hospital Report circa 1941 (Box 8)
   Twenty-Six, Twenty-Seven, Thirty-Eighth, Annual Report of the Lincoln Hospital at David M. Rubenstein Rare Book and Manuscript Library Duke University, Durham, North Carolina
4. Correspondence: Dr. Lewis W. Elias Collection—Dr. George M. Cooper's File at North Carolina State Archives Raleigh, North Carolina (Box 28)
5. Jane Abernethy Plyler Papers 1976–1980, Southern Historical Collection at Wilson Library University of North Carolina—Chapel Hill
6. North Carolina Board of Health Bulletins, North Carolina Biennial Health Reports at North Carolina History of Health Digital Collection UNC Health Sciences Library Chapel Hill, North Carolina
7. U.S. Children's Bureau Publications Government Documents located at University of Virginia Health Science Library Digital Archives

Primary journals accessed—*The American Journal of Nursing*, the *Journal of the Public Health Nurse*, *Journal of the American Public Health Association*, the *American Journal of Public Health* the *Journal of American Medical Association, Hygeia, the Journal of the National Medical Association,* and the *Journal of Negro Education*.

Secondary sources included literature from textbooks, books, magazines and journals that represent twentieth century social, cultural, medical and nursing history.

The period for conducting this study was the following:

Aug 2014	**Feb 2015**	**July 2015**	**Jan 2016**	**July 2016**	**Sept 2016**	**Oct 2016**
Proposal Defense Data Collection Consult with SBS/IRB	Data Collection	Chapter 2 Edit	Chapter 3 Edit	Chapter 4 Edit	Chapter 5 Edit	Committee & Defense

Ethical Considerations and Criticisms

Nurse historians have at their disposal the *Ethical Guidelines for the Nurse Historian,* and the *Standards of Professional Conduct for Historical Inquiry in Nursing* to guide ethical behavior and conduct for research.[35] The researcher adhered to guidelines to assure confidentiality for subjects, truth to the sources, context, subjects, colleagues, and community.[36] In addition, the researcher completed coursework in ethics at the University of Virginia, and CITI training in the ethics of conducting social and behavioral research. State and university archives housed data for this research; therefore, according to the University of Virginia criteria for Social and Behavioral Sciences Institutional Review Board (SBS/IRB), the study was exempt.

Chapter Overview

Chapter 1—Introduction

This chapter introduces the research topic, questions, significance and methodology for the research.

Chapter 2—Background and Setting: The Progressive Era

This chapter gives an overview of the context of northern industrialized cities during the Progressive Era. Immigrants from European nations poured into industrialized cities, which created social and public health problems. Industrialized cities were fraught with problems of poverty, unsanitary streets, overcrowded housing, epidemics, and high infant mortality. Health officials noted that infant mortality was excessive among immigrant families; they attributed deaths to maternal ignorance and improper feeding. Progressive leaders perceived that they could utilize scientific knowledge and education to address the problems within industrialized society. Nursing settlements in New York and other cities sent out nurses to teach immigrant mothers how to care for infants and prepare bottle-feedings to help reduce infant mortality.

In 1912, Congress created the Children's Bureau to study the infant mortality problem. Health leaders discovered that poverty, maternal ignorance, and improper feeding were contributors to infant mortality. Philanthropists and municipalities started milk depots to provide mothers with clean milk. These depots later became educational centers for mothers to learn how to care for infants.

Within industrialized society, there were changing roles for women. Affluent mothers desired a position outside the home, entered the political sphere, demanded the right to vote, and started bottle-feeding their children. They reported to physicians that they were unable to breastfeed for the recommended period of one year because they could not produce sufficient amounts of milk. Affluent mothers that did not breastfeed employed wet-nurses to provide human milk for their children, but later adopted bottle-

feeding after discovery that wet-nurses could potentially transmit disease through breast milk.

The chapter also examines infant and maternal health in rural areas. Mothers in the South and other rural areas across the country did not have access to medical and nursing care. Once the newly established Children's Bureau became aware of poor access to maternal care, and the lack of maternal education, Bureau leaders lobbied for federal assistance to states to provide urban and rural mothers with maternal and infant education. Congress passed the Sheppard-Towner Act in 1921 so that states could employ nurses to teach mothers prenatal education, and for nurses to teach lay midwives safer aseptic techniques for better outcomes for obstetric deliveries. The chapter ends with the public health initiatives that North Carolina conducted due to the Sheppard-Towner funds. Mothers that had mainstream access to health care received prenatal education, but for rural blacks, access to maternal education came indirectly through the instructions that lay midwives received.

Chapter 3—The Maternal Health of Black Mothers in North Carolina

Chapter 3 examines the state of infant and maternal health among black rural mothers in North Carolina and the obstacles they experienced regarding infant and maternal care. Black rural mothers did not have economic resources, transportation, and social agency to access medical and nursing care; they lived racially and socially marginalized. They were geographically isolated from towns and cities where physicians and medical clinics were located, which relegated their obstetric care to untrained lay

midwives. Black mothers had poor health status, which influenced infant and maternal mortality and morbidity.

North Carolina received federal funds from the Sheppard Towner Act so that public health nurses could teach prenatal education to mothers, and if needed bottle-feeding instructions. Black rural mothers incurred obstacles to receiving maternal education because of economics, geographical isolation and racial norms. Concerning blacks, public health nurses primarily taught midwife training to black lay midwives, and regulated their practice by requiring that they register with local health districts in order to practice. The Sheppard-Towner Act was in effect for only seven years, leaving rural mothers without federal assistance once the program ended. In 1935, to relieve the South from some of the effects of economic collapse due to The Great Depression, the federal government enacted the Social Security Act. The program provided funds for maternal health care so that boards of health could establish prenatal and maternity clinics in rural communities, which black mothers attended often.

Chapter 4—The 1940s and Beyond

In this chapter, the researcher argues that the federal Emergency Maternity Infancy Care (EMIC) Act provided a select group of rural black mothers with hospital access, which exposed them to bottle-feeding education (See Appendix A). These mothers were entitled to free infant, maternal, and hospital obstetric care because of the EMIC program. The government established the EMIC during World War II to relieve soldiers in the four lowest pay grades of worry concerning maternity and hospital care for their wives. Mothers had access to maternal education in hospitals. Within hospital

settings across the United States, nurses taught and modeled to mothers the latest scientific medical and nursing care, and taught mothers how to prepare and preserve milk for bottle-feeding. Black rural mothers were receptive to the instructions given within these health institutions where they received the best obstetric care that modern science had to offer.

Chapter 5—Conclusion: Science and Federal Health Programs Make Rural Mothers Modern

This chapter provided the discussion for the conclusion of this research and the synthesis of the findings led by study questions. The researcher analyzed and discussed the role of the nurse in relation to bottle-feeding education among black mothers and the social, political and cultural factors that influenced mothers to bottle-feed.

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Chapter 2—Background and Setting: The Progressive Era

In order to understand some of the issues related to infant feeding, it is important to examine the context of the rise of science, public health, and the nurse's role in the early twentieth century that relate to infant mortality. The combination of the rapid growth of industrialization, urbanization, and European immigration to America's cities collided to create social and moral unrest.[1] Social issues of poverty, unsanitary housing, poor work environments, race and class conflict, and epidemics plagued industrialized cities. Middle class political, humanitarian and professional leaders that identified themselves as Progressives objected to the moral decline and inequities that they witnessed in society.[2] These leaders lived primarily in urban areas and desired to transform society through education, and scientific knowledge. At the beginning of the twentieth century, science began to gain increasing prominence as a tool to address social problems; one major area that reformers sought to ameliorate was infant mortality.[3] In New York City in 1880, approximately 29 percent of infants born did not live to reach their first birthday.[4] Although infant mortality in New York had decreased to 1 in 10 deaths by 1912, this did not lessen the severity of the problem, especially within immigrant and black populations.[5] In both of these groups, infant death occurred more frequently in urban areas, but the situation was far worse for blacks for they died at more than twice the rate of white infants.[6] This chapter will provide an overview of the rise of science and public health nationally, and in North Carolina as it relates to infant mortality.

In the late nineteenth century, individuals continued to pour into industrialized cities, both native, and immigrants in search of work and a new life.[7] These conditions culminated in a congestion of poor sanitary living conditions, overcrowded housing, and illnesses that physicians and city officials struggled to resolve because they were just beginning to understand contagion. [8]

Physicians and health leaders began to address sanitary problems such as poor water supply, the accumulation of filth, human waste disposal, and polluted streets. Another condition was just as horrendous as these other social problems — high infant mortality. This too, would need sanitary measures and the attention of health leaders to curtail the death toll of cities' youngest victims, but before interventions could occur, health leaders would need public health strategies in place.

Recognition of Infant Mortality

At the turn of the century, reformers recognized infant mortality as a problem in northern industrialized cities where deaths occurred more frequently among immigrant children than native-born.[9] Health officials defined infant mortality as the annual number of deaths among infants less than one year of age per 1000 live births.[10] Chief Statistician Dr. Cressy L. Wilbur of the Bureau of Census in 1913 estimated that approximately 300,000 infants died in the United States before reaching the age of one year.[11] Reform advocates attributed infant mortality to impure milk, and mothers' ignorance of the ways of Americanized motherhood; therefore, officials targeted immigrant mothers for instructions in infant care. To address this problem, visiting nurse societies began programs of infant feeding. For example, nurses from the Henry Street Nurses' Settlement in New York begun in 1893, conducted home visits to teach immigrant mothers how to prepare and preserve milk for infant feeding.[12] In Richmond, Virginia, the Instructive Visiting Nurses Association in 1900, co-founded by nurse Superintendent Sadie Heath Cabaniss, also began a program of home visitation modeled after the Henry Street Settlement to teach mothers infant care, preparation of milk for infant feeding, and infant hygiene.[13]

Hugh Tuke Ashby, visiting physician to the Manchester Children's Hospital

in Cambridge England, cited maternal ignorance and improper feeding as causes for infant mortality.[14] He argued that poor infant management could cause infants not to thrive. He stated that mothers often sought advice from other mothers who lacked understanding of modern infant feeding. Mothers and caretakers were frequently unaware of the knowledge needed for milk hygiene, which consisted of scrupulous cleaning of milk bottles, proper amount of milk for feeding, and understanding and care to prevent contamination.[15] Improper knowledge of feeding could provide infants with too little or too much milk, thereby causing severe digestive disorders too difficult to overcome.

Ashby also argued that poverty was the greatest factor for infant mortality more than any other causes.[16] He contended that poverty adversely affected the lives of mothers and infants when there were not enough resources for proper nutrition for the family. He stated that poverty was likely the predisposing factor in infant mortality that caused mothers to seek employment outside the home to supplement the family income; thus, when mothers worked outside the home it often debilitated a mother's energy to care for the infant, and her ability to produce quality amounts of breast milk. In addition, work outside the home resulted in early weaning of the infant from breast milk; thus, mothers were compelled to leave the infant in the care of a family member or neighbor who might not be knowledgeable about proper care concerning bottle-feeding.

Luther Emmett Holt and Abraham Jacobi, leading pediatricians of the period, observed that infants died from digestive and diarrheal disorders (cholera infantum) due to improper food and feeding.[17] Public health official Milton J. Rosenau of Harvard University conducted a survey, which corroborated Holt and Jacobi's observations. In 1917, he reported that of 44,226 infants from New York, Chicago, Boston, and Philadelphia, more infants died of gastrointestinal

illnesses than any other disorder; in fact, 28 percent died of acute gastrointestinal illness.[18] Digestive disorders were a major factor contributing to infant/child deaths in New York City among bottle-fed infants, especially during the summer months when milk spoiled quickly. The health department reported that 85 percent of deaths were among artificially fed infants.[19]

At first, reformers conceptualized that infant mortality was a problem specific to northern urban areas due to the unfavorable environmental conditions of industrialized society, but comparative statistics compiled by the U.S. Census Bureau revealed that it was a problem not only in northern areas, but also in southern cities. Across the United States, vital statistics from registration areas for the 1900 census revealed that in northern industrialized cities—New York, Boston, and Philadelphia—the infant death rates were 170.5, 173.0, and 178.0 respectively out of 1000 live births; but in the South, rates were even higher (See Table 1:1).[20] In Savannah, Richmond, and Wilmington, rates scaled as high as 299.7, 250.6, and 202.8 deaths per 1000 live births respectively. [21]

Table 1: 1 Number of Infant Deaths per 1000 live births in Selected Cities for 1900 Census

Northern Cities	**Infant Mortality Rate**
New York, New York	170.5
Boston, Massachusetts	173.0
Philadelphia, Pennsylvania	178.0

Southern Cities	**Infant Mortality Rate**
Savannah, Georgia	299.7
Richmond, Virginia	250.6
Wilmington, North Carolina	202.8

Source: National Center for Health Statistics, Twelfth Census of the United States, 1900 Table 19

National Strategies of Public Health: The Rise of Vital Statistics

At the beginning of the twentieth century, health leaders began to recognize that vital statistics were essential to understanding and ameliorating the nation's health problems. Health reformers argued that before any measurable reduction in infant mortality could occur, they needed to know rates of births and deaths; thus, leaders urged cities and states to adopt birth registration laws.[22] This data would cover the span of life from infancy to middle and old age so that states could accurately respond with scientific and educative plans to prevent epidemics, and improve the health of the public.

The United States did not have sufficient data of vital statistics for every state in the union until the early twentieth century. Accurate birth and death registrations within western and southern states were far behind other civilized countries, records were either absent or incomplete because there was no standard system for data collection.[23] As early as 1881, North Carolina's legislature initiated a bill for vital statistics registration, but it was not effective. In 1913, the General Assembly enacted the Model Vital Statistics Law, which required the state to register all births and deaths that occurred in the state.[24]

Vital statistics data had the potential of demonstrating the value of public health activities. Public health statistician C. St. Clair Drake argued that in the age of specialization, vital statistics data were necessary for health officials to inform and convince legislators to invest in public health activities.[25] Dr. J. H. Knox, Associate in Pediatrics at Johns Hopkins University and President of the American Association for the Study and Prevention of Infant Mortality, spoke to public health officials in 1910, stating that the medical profession's interest in vital statistics was necessary to providing excellent medical service.[26] Knox argued that having access to vital statistical data was just as essential to good medical care as it was for a physician to

know the physiological function of the body, for without data of an infant's birth, the physician would not know to send a visiting nurse into the home to train mothers on infant care. Reform leader Dr. Sara Josephine Baker, director of New York's Bureau of Child Hygiene, also argued that vital statistics allowed health officials to have more control in reducing mortality—the birth statistic was the essential piece of information to their "baby-saving" work.[27] She stated, "Under the present system we use the information contained on the birth returns in order that a nurse may be sent at once to see the mother, and put her in touch with the various agencies that may be of service to her, and give her instruction in baby care."[28]

Modern American society began to recognize that vital data was a mark of an intelligent society in the twentieth century. Knowledge of essential birth and death statistics would assist health leaders in identifying health problems and aid in efficient responses. Thus, leaders began to establish efficient strategies of collecting vital data among the states. Health leaders' first federal initiative that would help promote this endeavor would be the creation of a federal agency specifically devoted to the needs of infants and children.

The Children's Bureau—National Effort to Offset Infant Mortality

The United States Children's Bureau established in 1912 was the first federal agency in the country concerned for child welfare. Its principle aim was to decrease infant mortality. Reformers conceived the idea of a federal agency devoted specifically for the welfare of children. They contended that children were a valuable resource to the nation's security that deserved care and protection on a national level to the same degree that the nation had for agricultural crops and food animals. The initial goal of the Children's Bureau was conduct

research concerning the causes of infant mortality, and report these facts to health professionals and the public.

Children's Bureau agents conducted studies in eight industrialized cities and in rural areas to determine the relationship of social, economic, industrial, and physical factors as they related to infant mortality.[29] Survey agents asked mothers about infant feeding, the earnings of the head of household, the mother's nativity, the employment of the mother, family housing, the age of the mother at the child's birth, the order of birth, and mothers' maternal history. Once statisticians analyzed the data, the bureau functioned as a clearinghouse to report and disseminate information to private individuals and professionals interested in child welfare. The bureau also published study findings and made them available to mothers in the form of popular bulletins, folders, and leaflets on maternal, infant, and childcare literature. Mothers corresponded with the U.S. Children's Bureau from the Midwest region, and throughout the United States concerning problems during pregnancy, and childbearing, and their lack of medical resources.

The Bureau published and distributed booklets such as *Prenatal Care*, *Infant Care, Breast Feeding and Keeping the Well Baby well,* and *The Child from 2–6.* The *Infant Care* booklet, published in 1914, became the most popular and stayed in print for several decades. Children's Bureau leader, Ms. Julia Lathrop, made scientific literature available to mothers on a broad range of topics, nutrition, infant health, infant clothing and practical advice from noted physician L. Emmett Holt.[30] The published childcare literature came primarily from the perspective of modern middle-class mothers who embraced scientific ideals and viewed motherhood as a profession rather than an art learned through natural maternal instinct.[31] These middle-class ideals on childrearing were impractical to some mothers of lower educational and economic status who tried to adhere to Children's Bureau advice. Children's Bureau literature

advised mothers to conserve their strength by reducing their workload, take rest breaks and recreation, feed the baby by the clock, and acquire pure milk for artificial feedings. It was highly improbable that immigrant working-class mothers, rural northern, mid-western, and southern indigent mothers could follow this advice considering their workload and some mothers' educational status; yet, mothers did find the pamphlets helpful.[32] Historian Molly Ladd-Taylor argued that the Children's Bureau bulletins became popular among mothers because the writers were able to engage the hearts of mothers by acknowledging their social condition within the literature, calling for economic and social reform and identifying with their strenuous workload and childcare responsibilities, yet recommending resourceful strategies that addressed their needs. Although this did not ameliorate families' social and economic conditions, the Bureau hoped that these recommendations would stir in mothers a demand for a higher standard for childcare.

In 1913, bureau leader Dr. Grace L. Meigs conducted a research study on the status of maternal mortality in the South. Meigs' research turned the attention of public health leaders towards the abominable health conditions in the South, which changed leaders' approach to addressing infant mortality in the region. She discovered that maternal mortality was excessive among childbearing mothers age 15–44 years, and maternity-associated conditions were second only to tuberculosis as a cause of mortality.[33] She learned that a reduction in infant mortality was closely associated with the care of mothers, and that infant deaths occurred in the first few days and weeks of life, but were preventable if mothers received skilled care before and during birth. Another finding was the importance of breastfeeding, that it was protective for infants from all diseases if mothers breastfed for approximately a year. In addition, mothers who received skilled care before, during, and after birth were more likely to be able to breastfeed.[34]

Meigs' findings attributed chief factors of maternal and infant death to mothers' ignorance of the dangers of childbirth, poor hygiene, and a lack of access to skilled care. She argued for higher standards of care for mothers during childbirth.[35] Her study documented that infant welfare should not be viewed as a separate work, but as "infant and maternal" welfare. She recommended to Congress that the federal government provide state funds to protect mothers by establishing prenatal clinics, and provide medical obstetric care in rural areas. From Meigs' recommendations later emerged the Sheppard-Towner Act, which was a positive development for black rural mothers in North Carolina because support for these mothers had been practically nonexistent.[36] Any federal attention to the South would offer a better chance for black mothers to get some help, no matter how small or indirect the services might be.

Sheppard-Towner Maternity and Infancy Act

The Sheppard-Towner Act was the first federal program solely dedicated to infant and maternal welfare.[37] Congress in 1921 created the program as an educational initiative designed to reduce infant and maternal mortality by educating mothers about prenatal care, and raise their awareness of the need for medical supervision during pregnancy, childbirth, and postnatal care. Earlier investigations conducted by the Children's Bureau revealed that rates of infant and maternal mortality were excessive especially in rural areas. Children's Bureau studies discovered that some mothers in rural districts frequently did not have access to medical and nursing care facilities, nor in some situations the aid of a birth attendant except a neighbor or a spouse.[38] Due to the urgent needs of these mothers, the federal government responded to this situation by passage of the Sheppard-Towner Act, which supplied aid to states for nurses to teach mothers about prenatal education, and infant care.[39]

Health leaders believed that the significant challenges that rural mothers faced, lack of access to medical and nursing care, and their reliance on unskilled lay midwives, contributed to infant mortality. These leaders perceived that infant mortality was preventable and that prenatal education could reduce mortality and improve infant and maternal health through establishing baby clinics, supervising midwives, and instructing mothers in the value of breastfeeding.[40]

The Breastfeeding Message

The care of sick infants was primarily a private matter—mothers took care of their sick infants, but as society began to take a different view of children as the nation's great resource in light of declining birth rates, efforts to address infant welfare began to emerge that included the importance of breastfeeding to preserve infant life. Some physicians began to advocate for the efficacy of human milk and breastfeeding as the solution to the growing problem of infant mortality. In Boston, the Board of Health in 1910 conducted an investigation among 900 mothers to determine rates of breastfeeding and bottle-feeding. With over 700 responses to the survey, 72.4 percent of infants were breastfed while 27.6 percent were bottle-fed.[41] The study also accounted for the total number of infant deaths in Boston for 1911, which was 2,245, of which the highest mortality occurred among bottle-fed infants (1,603) with a rate of 127 deaths per 1000 live births.[42] Analysis of the study concluded that if breastfeeding had occurred among all infants, there would have been a reduced mortality rate of 71 per 1000 live births, saving a thousand infant lives; thus, public health officials advocated for more breastfeeding among mothers to reduce this problem.[43]

The Children's Bureau and physicians recognized breastfeeding as superior to artificial feeding and encouraged mothers to breastfeed. The Bureau emphasized the importance of

breastfeeding, and initiated baby-saving campaigns throughout cities and states to increase breastfeeding by distributing literature to inform mothers of its importance, and encouraging them to continue breastfeeding as long as possible. Baby-saving efforts included activities such as lectures, conferences, and nurses' visits to promote breastfeeding. In New York City, the Department of Health in 1913 distributed leaflets to mothers on "Ten Reasons Why a Mother Should Nurse Her Baby." [44] The bureau provided information to mothers that breast milk was a natural food for babies, and that mothers should not give infants any artificial food while waiting for breast milk to come in. Mothers were encouraged to breastfeed until the tenth month or as long as possible to give the infant the best chance at infant survival.[45]

During a speech at the fourth annual meeting of the American Association for the Study and Prevention of Infant Mortality, Dr. Michael M. Davis stated that "breast feeding must still be regarded as a most, if not the most important preventive of the summer death of infants."[46] In addition, Dr. Charles V. Chapin, health superintendent of Rhode Island, touted the benefits of breastfeeding to fellow members of the Association by calling it the "great advantage" to reducing infant mortality.[47] Health leaders believed breastfeeding was a viable solution to this problem, but the greatest challenge they faced was getting more mothers to breastfeed.[48]

The Rise of Bottle-feeding

From antiquity, mother's milk has been the life-sustaining food of infants. In the early nineteenth century, the expected pattern of infant feeding prescribed by society was that women would breastfeed infants.[49] Within a network of mothers, female friends and midwives, rural women obtained knowledge and support from each other concerning infant feeding, childrearing and nurturance.[50] Mothers generally did not consult physicians on feeding issues, nor did

physicians seek infants out as patients. However, by the late nineteenth century, the pattern of infant feeding began to include bottle-feeding. Middle-class mothers started to voice their problems with infant feeding to physicians, complaining that they could not breastfeed throughout the traditional period of the infant's first year; subsequently, mothers started weaning infants at earlier periods, and some weaned as early as four weeks or less; some mothers would not even attempt to breastfeed.[51] Physicians reported this as a decline in the suckling power of mothers.[52]

Affluent mothers chose wet-nurses to feed infants if they could not or (would not) breast feed, but physicians and some mothers questioned wet nurses' health and moral standards; therefore, some families did not trust them to supply safe milk for infants.[53] Mothers often asked physicians to select a suitable wet-nurse for infant feeding. As it became more difficult for physicians and mothers to secure a healthy wet nurse, physicians discouraged their use. Mothers whose experiences were less than satisfactory felt that wet nurses were difficult to work with, and frequently portrayed them as dangerous to infant health because they could transmit disease.[54] This ultimately resulted in mothers employing them less and utilizing bottle-feeding more. Physicians advocated breastfeeding, but they also recognized that there were conditions whereby mothers were unable or would not perform this task.

Noted physician Luther Emmett Holt advocated breastfeeding as a cardinal principle, but recognized that there were circumstances where this was not possible.[55] Conditions that precluded breastfeeding were illness, death, or milk insufficiency. Other factors that hindered mothers from initiating breastfeeding or caused them to give up altogether were sore and retracted nipples and mammary abscesses.[56] Holt contended that mothers could prevent sore retracted nipples if they gave attention to toughening the breasts with cold-water washes months

before the birth of the infant. As contributing writer and physician for the popular mother's magazine *Babyhood,* Holt reported that retracted nipples were due primarily because women placed too much pressure upon the breasts from tight-fitting corsets.[57]

Dr. Nathan Allen argued that the phenomenon of failure to breastfeed among New England mothers required more than one answer. He stated that mothers failed in this ability due to a disharmony of all the body members at the expense of the maternal body's ability to sustain the maternal laws.[58] He further contended that Yankee mothers did not have the qualities or maternal features for child rearing like immigrant mothers of Irish, Scot, and German descent, but that Yankee women were flat chested, lacking in full plump bodies, and did not possess full muscles required for breastfeeding.[59] After countless reports by mothers to physicians of their inabilities, some physicians began to accept that milk insufficiency was inevitable; thus, they advised mothers to supplement infant feedings with bottles of cow's milk to avert the inevitable event of milk insufficiency.[60]

Some physicians proposed pseudoscientific and evolutionary theories, which implicated industrialized living as a stress factor on the mammary glands, which would eventually lessen a mother's ability to breastfeed. Holt, for example, argued that evolution had lessened the biological function of the human female to breastfeed, and psychological factors assaulted a mother's ability to breastfeed.[61] In his book *The Care and Feeding of Children*, he noted that nervous conditions, fear or upset, could spoil breast milk, rendering it unfit for consumption, and that excitement, fright or passion (more than diet) adversely affected a mother's milk supply.

Physicians of the early twentieth century thus advocated that mothers breastfeed infants if they were able to do so. These mixed messages to breastfeed if the mother was able left women uncertain whether they could adequately breastfeed to the customary period of an infant's first

year, resulting in a pattern of early weaning for some mothers. The majority of mothers breastfed their infants during this time, between 1890 and the 1930s, but women who could not (or would not) breastfeed sought a substitute for human milk.

The Cities' Milk Supply

The milk supply in America's cities gave rise to many opportunities for contamination as dairymen transported milk into cities. Dairies were generally located in rural areas, sometimes as far away as sixty miles. Dairymen transported milk on unrefrigerated trucks in cans open to flies, pests, and vermin. Until milk reform, there were no sanitary regulations for the detection of diseases in milk or in cows. John Spargo, an infant welfare advocate during the Progressive Era, noted that milk contamination was due to unsanitary conditions of transport and handling by untrained milk handlers whose neglect of hand sanitation compromised milk safety.[62] Spargo cited that milk handlers would wipe their nose on the back of their hands or dry them with the sides of their trousers, not to mention that they often failed to wash milk pails thoroughly. By the time milk reached cities, which generally took several hours, bacterial growth had increased exponentially. Other reformers, alarmed about the milk supply, warned the public how serious the condition was. William T. Sedgwich of the Massachusetts Association of the Board of Health found the situation deplorable:

> Milk is one of the most common articles of food: it is given especially to the young and very largely to children under five years of age. It is usually drawn from animals in stables, which will not bear description in good society, from cows, which often have flaking excrement all over their flanks, by milkmen who are anything but clean. It is drawn into milk pails, which are seldom or never thoroughly cleansed, sent to the city where it is still further delayed and finally delivered to the consumer in a partially decomposed condition. When you add to these facts that it may contain the germs of disease, you have a story, which any fair-minded citizen, it seems to me, must regard as deplorable.[63]

Even though reformers cried for milk reform, conditions reached an even lower point. Some dairymen near cities with breweries fed cows with distiller's mash, which transformed the content of milk into a product called "swill milk" that caused infants to become sick and slightly intoxicated.[64] Despite city officials' outrage, there was a market for "swill" milk, which dealers sold at cheaper price to customers who could not afford quality milk.

Watering the milk was also a practice that milk dealers perpetrated frequently on poor customers in Chicago. *Chicago Tribune* journalists reported that customers had reason to be suspicious of the actual cause of death on infants' death certificate. One official fittingly responded to his suspicion by stating, "could a proper death certificate be made out many an entry of 'cholera infantum' would be changed to starvation from being fed on watered milk." "They sell whole milk to the rich, skimmed milk to the middle class, and 'so-called milk, which is three-fourth water if not something worse' to the poor."[65]

From Milk Depot to Infant Welfare Stations

To address the adulterated condition of the milk supply, philanthropic and municipal organizations supplied clean milk to mothers at milk depots. Pediatrician Abraham Jacobi convinced philanthropist Nathan Strauss that if he would fund a milk depot for mothers in the tenement districts of New York, it would do much to advance a reduction in infant mortality.[66] Physicians prepared pasteurized milk from laboratories and distributed it to mothers primarily during the summer months when infant mortality was greatest.[67] At the milk depots, nurses sold a day's supply of milk at cost, and gave it to mothers free if necessary.[68] At these sales, nurses did not instruct mothers on milk care and preparation; their only focus was the provision of clean milk for reducing infant mortality. Health reformers considered Strauss's milk depots a success,

dispensing over 34,000 bottles of pasteurized milk in the first year. After this success, city officials modeled stations in Baltimore, Richmond, Philadelphia, Boston and Chicago. Over a six-year span, from 1897 to 1902, 1,612 fewer deaths occurred due to access to clean milk at milk stations.[69] Infant mortality was reduced by as much as 65 percent in New York among children less than one year of age and by 58 percent of those between the ages of one and five years.

At the turn of the twentieth century, reform leaders acknowledged milk depots' success, but realized that it would take more than milk distribution to reduce infant mortality within tenement districts. Wilbur C. Phillips, Secretary and Administrator of the newly created New York Milk Committee, took a new approach to infant mortality reduction in the early twentieth century, shifting the focus from milk reform to maternal education.[70] For years, municipal departments and philanthropic organizations had sought to provide clean milk to indigent mothers, but they began to realize that in the home this had minimal effect on mothers' knowledge of milk safety and storage. Clean milk without knowledge of infant and domestic hygiene could not resolve infant mortality problems.

Physicians L. Emmett Holt and Arthur Newsholme contended that without teaching immigrant mothers about infant hygiene, infant mortality rates would remain high.[71] Newsholme and other reform leaders began to suspect that among immigrant mothers, domestic hygiene was a bigger factor influencing infant mortality than contaminated milk. How mothers maintained milk safety in the home became a concern due to mothers' ignorance of domestic sanitation and hygiene in methods of infant feeding, which were chief causes of diarrhea-related infant mortality.[72]

New York City's Child Hygiene Director, Sara Josephine Baker, was convinced that the proper response to reducing infant mortality was maternal education. During a conference of the New York Milk Committee in 1911, Baker commented that in the mission to reduce infant mortality, it was inadequate merely to attempt to supply milk to mothers without coupling it with teaching. She argued, "the solution of the problem of infant mortality is 20 percent pure milk and 80 percent training of mothers."[73 1112]

Subsequently, around 1915 a new type of milk station emerged, and reform leaders turned their attention toward education reform, instead of only supplying clean milk to mothers.[74] Earlier milk depots provided clean milk without any maternal accountability or follow-up, which resulted in criticisms from some physicians, which raise the indictment that milk depots actually contributed to the infant mortality problem.[75] Such criticism of milk depots contributed to a new strategy and purpose in infant and maternal welfare efforts that brought the nurse's role to the forefront. Milk stations of the early twentieth century became known as "infant welfare stations"—clinics in which nurses encouraged mothers to breastfeed, and offered maternal education, and provided milk to mothers if needed. Nurses conducted home visits to train mothers in milk preparation for the formulas, and taught principles of infant and domestic hygiene within the home setting. They managed milk stations and trained mothers through lectures and demonstrations in the safe preparation and storage of milk to maintain freshness.[76] Nurses also weighed infants and gave instructions for feeding formulas if physicians were absent. Instead of setting up milk stations and waiting for mothers to come, nurses at these stations canvassed the neighborhood for new mothers not registered at clinics and encouraged pregnant women to attend classes at infant welfare clinics. The role of the trained nurse thus increased and became paramount in reducing infant mortality. Medical and public health leaders

noted their role and influence in educating mothers and their complementary work in medicine and nursing.

Dr. Charles V. Chapin stated in an article on public hygiene in 1908 that "nurses were the most efficient agency in this particular phase of preventive medicine" of training mothers in infant and domestic hygiene.[77] To add to the nurses' efficiency and significance, Dr. Charles Edward A. Winslow, one of the most celebrated public health officials of the twentieth century, reported that the public health nurse and the training of mothers at infant welfare stations were the most powerful weapons against infant mortality.[78] He considered public health nurses to be the essential messengers of scientific knowledge to mothers at welfare stations and in the home because the nurse interviewed mothers, weighed infants, kept the records, and instructed mothers in infant care and feeding.

The Rise of Pediatrics

As populations shifted from rural areas into cities in the late nineteenth century, societal attitudes began to change. On the farm, parents often thought of young children as extra "farm hands" to help with chores. Farm families would often have a fatalistic attitude towards the death of a child, where they viewed death as inevitable, that it was God's will, but modern urban families idealized family life, and thought that children needed special care and protection.[79]

At the turn of the century, as scientific discoveries in medicine and knowledge of illnesses increased, there were improved interventions—vaccines, diagnostic techniques, and pasteurization, which proved that death among the young, was preventable.[80] Interest in child welfare increased. Reformers aimed to reduce child labor, infant mortality, and improve infant feeding, which resulted in an increased distribution of literature on normal child health,

development and physiology.[81] Turn of the century physicians became the authority on child health and development. Out of this movement of scientific knowledge and reform emerged physicians who viewed children not as "little adults," but individuals that possessed their own physiology, chemical balances, and behavior. Those physicians made child study their life's work, and out of this scientific knowledge was born the medical specialty of pediatrics.

One noted physician who dedicated his life to this specialty and introduced pediatrics to American physicians was Abraham Jacobi, recognized in America as the father of pediatrics.[82] Jacobi incorporated the study of pediatrics into American medical curriculums, taught over forty years as a professor of pediatrics at College of Physicians and Surgeons at Columbia University, and the New York Medical College, and was the first to give systematic instructions on the diseases of children. In addition, he was instrumental as an organizer and founder of children's clinics and hospitals.

Pediatricians emerged as medical leaders to address mothers' infant feeding problems. They recognized that infants fed on cows' milk had more feeding issues and higher rates of mortality. In order to address this problem, pediatric physicians made it their goal to put bottle-feeding on a "scientific" basis; subsequently, pediatrician Thomas L. Rotch developed the "formula or percentage" method of infant feeding, whereby physicians for decades utilized the formula method to modify infant feeding.[83] Based on a mathematical formula specific to an infant's weight, Rotch calculated the percentages of protein, casein and fat needed for infants to digest cow's milk easily. These three components comprised both human and cow's milk; therefore, milk modification for easy digestion became the hallmark that propelled pediatricians as experts of infant feeding in early twentieth century. As their knowledge of milk analysis and

child physiology increased, mothers became receptive to their scientific leadership and supervision.

Historian Alice Beardman Smuts argues that scientists and physicians offered women scientific views and advice on childrearing that differed from traditional ways. [84] L. Emmett Holt's book, *Care and Feeding of Children,* offered women scientific advice on childcare and feeding. His book went through six editions by 1912, and he advised his followers that just as farmers should not plant crops before consulting the latest scientific reports from departments of agriculture, parents should not try to rear children without the help of specialists. [47 46 47 4885] Psychologist G. Stanley Hall also emerged in the late nineteenth century with a new scientific psychology, which encouraged scientific study of children.

Educated middle-class mothers were especially eager to learn and share scientific viewpoints on child rearing; they expected this knowledge would transform motherhood into a true profession. These mothers were impressed by the successful results in productivity in disciplines such as agriculture, conservation, and public health, and believed that science would benefit them in matters of child rearing. "Scientific childhood" and "scientific child rearing" became common phrases at mother's clubs, well-baby stations, lectures, and in magazine articles.[86] One mother in the *Ladies Home Journal* magazine wrote, "Ideal motherhood you see is the work not of instinct, but of enlightened knowledge conscientiously acquired and carefully digested . . . . [F]our-fifths of the ill health of children could be avoided with proper maternal training." Women, she wrote, needed to "cultivate a new way of looking at their children, a scientific way, like men."[87]

With infant feeding a prominent problem in late nineteenth and early twentieth century, mothers thus looked to science and pediatricians to help them raise healthier children. Historians

Rima Apple and Richard Meckel argued that Rotch and Holt insisted that poor and deficient infant feeding were at the root of infant maladies, and therefore the best preventive was mothers' guidance under the supervision of a pediatrician.[88]

Better Obstetrics for Mothers

The fear of pain, suffering, and death haunted the minds of nineteenth century women during the confinement period. Motivated by the fear of death and debility, middle- and upper class women were determined to find an easier and less perilous experience in childbirth.[89] Traditionally, the birth experience had been a social gathering of the parturient mother, whose female friends, and midwife offered support and comfort during confinement. Affluent mothers broke with propriety and invited male physicians into the birthing room so they could have access to what they perceived to be safer and scientifically advanced techniques beyond the interventions of midwives.[90]

Concurrently, as mothers desired better obstetric services from physicians, American medical schools came under the scrutiny of the Flexner Report.[91] Abraham Flexner was a teacher and researcher for the Carnegie Foundation. In 1910, Flexner published a report entitled "Medical Education in the United States and Canada," which transformed medical schools in America. His findings criticized proprietary and apprenticeship-styled schools, which favored profit rather than standards reflective of biomedical and clinical scientific training like German styled curriculums. His findings culminated in the closing of many medical schools in America, and reform of the organization and curricula for those schools that remained.

During this period, obstetrics was a medical service that did not carry the prestige that it does today; as a business, it was a service that competed with midwives for potential patients.

Desiring to improve training and skills of obstetricians, Dr. John Whitridge Williams, a noted professor of obstetrics at Johns Hopkins University, and Dr. Joseph B. DeLee of Chicago influenced obstetrics in the early twentieth century to establish it as the safest method for maternal delivery.[92]

In 1912, Williams conducted a survey of 121 medical schools to assess the state of obstetric education. He discovered that students knew academic and theoretical basis of obstetrics but lacked practical clinical experience of labor and delivery cases. He further unveiled that many professors were ill equipped to teach, had minimal experience delivering infants, and were incompetent when confronted with abnormal deliveries for many had only seen one or two deliveries in their careers.[93] In fact, many physicians and even instructors felt embarrassed discussing the topic during classes. Subsequently, Williams found that medical schools did not have adequate equipment and facilities for teaching obstetrics. He concluded that obstetric education was poorly organized and did not have any standardized system for training; thus, he set in motion a transformation in the training of obstetricians, which would shape the quality of obstetric education and care for the new century.[94] William's text, *Williams Obstetrics*, set the standard for obstetric textbooks for decades in both American and Canadian medical schools.[95] Williams concluded his study with recommendations for higher standards for admitting students, employing scientifically qualified professors of obstetrics, educating the public, training nurses, and even involving midwives.[96] Mainly, though, Williams contended that the only way to improve and establish the specialty of obstetrics was to practice his discipline within the hospital setting.

Another obstetrician who sought to improve the specialty was Dr. Joseph B. DeLee who set out to influence obstetrics by removing the dangers that mothers and infants faced during

childbirth.[97] He contended that mothers were subject to injuries such as infections, ruptures, and hemorrhages, during childbirth, and that infants could experience brain injuries during prolonged births. In 1920, DeLee's article entitled "The Prophylactic Use of Forceps," set a precedent in obstetrics that purported that labor was pathogenic.[98] He argued that with forceps, obstetricians could deliver an infant to help prevent brain injuries during protracted labor, and that women would incur less injury during birth if they received an episiotomy to prevent tearing of the perineum as the infant passed through the birth canal. DeLee's intervention of forceps, and episiotomy by obstetricians became a benchmark in obstetrics; thus, these procedures became routine practice in normal deliveries to improve hospital obstetric care.

During the early 1900s, women began to deliver infants within hospitals rather than at home. The search for safe, pain free, aseptic environments during confinement beckoned women to hospitals, and it became the new clinical training ground for the specialty of obstetrics. Medical students needed a steady supply of patients in order to improve training and perfect skills; thus, hospitals provided an organized system for converging education and practice with the latest technological and scientific advances of obstetric medicine.[99] Childbirth historians Richard and Dorothy Wertz argued that hospitals were convenient sites for physicians, which served multiple purposes. Not only did hospitals provide a steady flow of obstetric experiences for training physicians, women too benefited from the hospital experience as a safer place for difficult confinement. Women began to view the hospital environment as cleaner, more comfortable than the home setting, and a time of rest from the ordinary pace of domestic activity.[100] In addition, the hospital setting provided mothers a small remnant of the traditional female social network characteristic of home births through interactions with female nurses, and social workers.

The Rise of the Black Hospitals

Because of economic, social, and racial barriers, medical and hospital access was not readily available to blacks. Before the close of the nineteenth century, a rising class of black physicians emerged to establish hospitals and nurse-training schools for blacks in the face of racial inequities and denial of access to mainstream medical care. However, historian Vanessa Northington Gamble argued that blacks did not establish black hospitals only because of denial of access, but also because blacks were accustomed to providing for their needs.[101] Gamble argued that black hospitals were a "self-help endeavor," which demonstrated the strength and resilience of the black community in the face of racial oppression. Not only did black professionals establish black hospitals, in addition, educational institutions, churches, and fraternal organizations started them. Gamble asserts that black hospitals emerged because of economic survival of black professionals so they could keep abreast of professional developments in scientific medicine, and provide an outlet for physicians to exchange professional knowledge. [102]

Although black hospitals catered to blacks, they generally were not of the best quality. They were usually underfunded, poorly staffed, small, cramped, over-booked, and lacking sufficient rooms, and equipment; yet, they were often the only place where blacks could go for medical attention without discrimination. Black hospitals provided black patients with much-needed health services while assuring them medical treatment with respect and dignity.

The black hospital also aided black females employment as professionals far beyond prescribed roles. Medical historian P. Preston Reynolds reported that St. Agnes Hospital established in 1896 in Raleigh was the first black hospital in North Carolina that served as a

medical home to treat blacks and a medical facility where black women could train to become nurses. This line of work was not only a form of self-help to provide much-needed black health professionals, but also served to inspire black women to participate in new forms of work beyond traditional prescribed roles.

Modern Maternal Care

By 1930, medical professionals asserted that modern knowledge of infant nutrition had evolved to the place where artificially fed infants could be just as healthy, and do well as the breastfed infant.[103] Even so, educational material still recommended that breast milk was the ideal food for infants if mothers adhered to good nutrition, rest and healthy living.[104]

In addition to the ideal of breastfeeding, physicians described artificial feeding as a viable alternative for those mothers who could not breastfeed.[105] This recommendation came with the added supposition that bottle-feeding was also just as good as human milk if mothers could safely prepare the milk for bottle-feeding. With advanced knowledge of infant nutrition, physicians of this period understood that successful results for bottle-feeding hinged on mothers' knowledge of how to safely prepare the milk. This suggested that mothers with more education and greater economic resources would be better candidates for utilizing bottle-feeding for infant feeding. Conversely, it suggested that lower income and uneducated mothers could be a hazard to infant health because they did not know how to safely prepare infant formula. [106]

Despite medical acceptance of the efficacy of bottle-feeding, pediatricians did not reject the benefits of human milk. As late as 1947, medical educators not only continued to advocate the physiological benefits of breastfeeding, but also included in medical textbooks that breastfeeding promoted bonding between a mother and child during the breastfeeding

experience.[107] In addition, textbooks cited breastfeeding as reducing anxiety among mothers. Mothers who breastfed seemingly incurred less anxiety when they did not have constant reminders of looking at the infant's bottle to determine the amount of milk infants consumed, whether too much or too little.

Public Health in North Carolina

Health officials in the South were slow to initiate health programs for the poor during the early twentieth century. Historian Edward H. Beardsley contended that the South lagged behind in helping the poor because of a system of racial prejudice, slow growth in county health departments, and a legislative body reluctant to support public health programs.[108]

As early as 1903, Dr. C.W. Stiles of the United States Public Health Service informed North Carolina's State Medical Society that hookworm disease was prevalent throughout the South and in North Carolina, but it was several years later in 1910 before public health work began to eradicate the disease. The state board of health assigned Dr. John A. Ferrell, as assistant secretary for hookworm eradication under the direction of the Rockefeller Sanitary Commission.[109] The hookworm project was the first county health program that 99 of the 100 counties participated. The Sanitary Commission found thousands of children infected across the state and treated them for the disease. This spurred a desire by some officials for better health work that caused some counties to employ full- time county health officers.

Milk purity represented another health program for the state of North Carolina. State Veterinarian Tait Butler in 1908 urged town officials to demand that milk producers know what constituted the highest grade of milk, and that physicians abandon their indifference to the importance of clean milk.[110] In fact, some physicians had to be convinced that milk was a

potential carrier of diseases such as typhoid and tuberculosis. Butler urged physicians to obtain "expert dairy knowledge," which would afford them the skill to be able to conduct scientific dairy inspections, to test cows for tuberculosis, to prohibit the sale of un-bottled milk, and enforce mandatory requirements that dairymen keep cows and barns clean.[111]

Despite the South's lack of organization for public health, North Carolina around 1910 led the way among the other southern states in creating public health programs; the state hired a full-time health director, and some counties organized health departments.[112] In 1915, the Sorosis Women's Club of Wilmington and the North Carolina Board of Health established the first milk station in North Carolina, which operated out of the county courthouse and ran for approximately three months during the first year.[113]

In North Carolina, seven black hospitals served the black population with medical care: St. Agnes in Raleigh, Jubilee in Henderson, the Good Samaritan in Charlotte, Gaston Hospital in Gastonia, Lincoln Hospital in Durham, and two other community hospitals. Of those seven hospitals, the Lincoln Hospital lasted into the middle twentieth century.[114] Washington Duke, founder of Duke University, established Lincoln Hospital in 1901. Lincoln Hospital served black citizens with medical, surgical and obstetrical care for over fifty years.[115]A biracial board of trustees governed Lincoln after 1925 as a municipal hospital rather than a private facility. The board agreed to accept patients regardless of their ability to pay. To offset financial default from a high rate of non-paying customers, a Duke Endowment fund paid a dollar a day for any patient that could not pay for a bed. Unlike white hospitals that barred black physicians from practicing in white hospitals, Lincoln accepted all physicians in the city and county who were in good standing with the Medical Society.

North Carolina's State Health Bulletin advanced public health work by utilizing major newspapers around the state that featured health education articles on a regular basis.[116] Educative work consisted of a series of short health articles sent out as press releases on a weekly basis. As the trend in health articles caught on, health officials decided to feature articles daily rather than once a week. Through radio, newspapers, and the health bulletin, the media became an influential method of reaching citizens with health information. Among the 400,000 homes in North Carolina, readers of popular newspapers during the period were very interested in personal health articles. Rather than knowing national health figures or the status of some other distant state, of particular interest to North Carolinians were articles on infants and women.

It was around 1910 that blacks made one of their migrations off the farm into cities in the South. Economics were changing for black citizens in the South at this time, and many blacks migrated off sharecropping farms into cities in the South, in order to better their ability to earn a living. Health officials soon noticed that the health status among these families was extremely poor and they could not overlook their high rate of mortality. As long as they were living and working on plantations and in farm tenancy, their health status went unnoticed. Infant and maternal mortality was two times greater in the black population than in the white.[117] Among the many diseases that afflicted the rural poor were malaria, affecting 25 percent of the people, hookworm disease (30 percent), suppurating gums (30 to 40 percent), and other devitalizing ailments such as adenoids, tonsillitis, defective vision, and bad teeth. [118]

North Carolina did not organize a Bureau of Infant Hygiene until 1918 when certain funds became available. The state board of health selected nurse supervisor Kate Brew Vaughn to head the bureau; she would educate the mothers of North Carolina in infant hygiene. [119]

Vaughn conducted conferences, lectures and demonstrations on infant and maternal care. In addition, she wrote maternal and infant care articles for the state's health bulletin, and invited mothers to write and request free literature. Vaughn resigned the position the following year in 1919, and the bureau reorganized under an agreement between the American Red Cross and the State Board of Health.[120] The Red Cross agreed to support the bureau with half the budget allocated for the program while the state board supplied the rest. In addition to the bureau's responsibility for infant hygiene work, under the new organization, public health nursing work was included; thus, the bureau became the Bureau of Public Health Nursing and Infant Hygiene. In 1922, the Red Cross abrogated their agreement with the Board of Health, and the state reorganized the bureau as the Bureau of Maternity and Infancy.[121] By this time, Sheppard-Towner funds would support maternal health work in the state under the supervision of nurse Rose M. Ehrenfeld. Infant hygiene work in North Carolina endured several bouts of reorganization, which likely encumbered widespread progress in educating mothers in the state, especially marginalized rural mothers.

Sheppard-Towner activities in North Carolina for maternal and infant health work were limited to items approved by the Children's Bureau. The state bureau of Maternity and Infancy was responsible for handling and distributing silver nitrate solutions for use by midwives and physicians to prevent blindness in newborns, and the bureau was in charge of midwife registration. [122] The object of the bureau's work in North Carolina was to conserve and promote the welfare of infants and mothers in pregnancy and childbirth, and reduce deaths, especially in rural counties, which were as many as 50 percent or more of the total deaths in these counties. Twenty-five percent of all infant deaths in the state occurred in the short period from birth to the close of the second year, which bureau leaders determined was due to a lack of knowledge of the

underlying principles of infant care and a lack of prenatal education.[123] Interventions to change infant mortality statistics were educational, and aimed to raise the general knowledge of the whole citizenship upon these questions. The campaign undertaken to reduce infant mortality in North Carolina was the following: [124]

(a) Educational literature mailed from the Bureau, press articles, and publications;

(b) Lectures delivered by representatives of the Bureau to the public; and

(c) Nurse led permanent maternity and infancy care plans.

For mothers who had access to mainstream health care, maternal health education became available to improve health outcomes due to support from the Sheppard-Towner Act. The state board of health received funding to employ public health nurses to organize county health work to teach mothers prenatal education through lectures and home visits, and bottle-feeding training if needed. Public health nurses worked primarily with lay midwives to address maternal and obstetric needs of black mothers. Nurses addressed obstetric needs of black mothers by training lay midwives safer aseptic techniques of hand washing, to administer silver nitrate drops into the eyes of infants to prevent blindness, to apply sterile cord dressings to infant navels, and to avoid vaginal examinations during infant deliveries.

Black mothers would face greater barriers to obtaining maternal education than white mothers did. The next chapter will describe the infant and maternal health status of rural black mothers, and the social, economic and geographical barriers they experienced during the Sheppard-Towner years that sustained excessive infant and maternal mortality rates. These factors would contribute to keeping black rural mothers marginalized from mainstream prenatal education and bottle-feeding training.

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Chapter 3—The Maternal Health of Black Mothers in North Carolina

When the federal government signed into law the Sheppard-Towner Act in 1921, it was in response to a lack of maternal education, and inadequate access to medical and nursing care. Mothers that lived in rural areas were generally isolated from towns and cities where medical and nursing providers maintained their practice. In isolated areas, poverty, illiteracy, and transportation issues abounded. These problems would preclude black indigent mothers from accessing mainstream maternal care where physicians usually kept offices where mothers could receive medical supervision for bottle-feeding. In rural areas, breastfeeding was the customary pattern of infant feeding.[1] This chapter will argue that socio-economic conditions, racial, and social inequities, illiteracy, and geographical isolation were some of the factors that kept rural black mothers from transitioning to bottle-feeding during the Sheppard-Towner Era in North Carolina.[2]

Implementation of the Sheppard-Towner Act in North Carolina

When the Sheppard-Towner bill was in effect in North Carolina, bottle-feeding was one of the trainings that nurses instructed mothers who had difficulty breastfeeding. Bottle-feeding required certain standards that physicians should medically supervise mothers when they choose to feed infants via bottle-feeding. In addition, mothers should have knowledge of sterilizing nipples and bottles, and an understanding of milk hygiene and preservation. It also required that mothers possess economic resources to purchase milk and bottle supplies.[3] These factors likely would have prevented black rural mothers from bottle-feeding. In some instances, nurses acted as gatekeepers because they were assigned to use their discretion concerning mothers' ability to

bottle-feed.[4] Nurses judged whether mothers were capable of learning to bottle-feed, and whether mothers' social conditions were such that bottle-feeding was practical. In view of these factors, bottle-feeding may have been just as much a social class phenomenon as it was a response to any physiological difficulty with feeding. Some physicians believed that urban middle and upper class mothers were less able to secrete milk for the customary twelve-month period.[5] Black rural mothers did not appear to have this "problem." First, their socio-economic status did not afford them the resources necessary for bottle-feeding. Secondly, rural blacks generally did not live in neighborhoods and homes that were conducive to hygiene and sanitation, nor, did they live near towns in close proximity to physicians' offices where they could receive medical supervision for bottle-feeding.[6]

Barriers to Maternal Care in North Carolina

In 1920, 85 percent of North Carolina's territory was rural.[7] Blacks resided predominately in agricultural areas of the eastern and middle Piedmont regions, which could be difficult to reach due to poor road conditions. North Carolina's infrastructure for transportation in the early twentieth century had not expanded far beyond the city limits, and travel over unpaved roads made it difficult for health providers to reach patients.[8] Heavy rains could cause creeks to flood and wash out rivers and pathways, making roads impassable by car or foot. In fact, transportation was one of the major problems that eyewitnesses documented as a barrier to health care in the South.

Elizabeth M. Thompson worked in North Carolina during the 1930s as one of the first black public health nurses. She reported that farm tenants generally lacked transportation, which isolated them from public health services.[9] According to Thompson, transportation for tenant

families consisted primarily of mule and wagon that was available only when landowners allowed workers to travel to town on Saturdays. Because of these barriers, rural mothers had limited access to medical care. Maternal care for rural mothers required the help of midwives to offset the inequitable access to more modern medical obstetric care. In fact, Dr. George M. Cooper, state director of Maternal and Child Health Services, reported in 1937 that North Carolina for twenty years was one of four states in the union with the highest birth rate, which would have required midwives to reach this large indigent population.[10] Sheppard-Towner officials' primary goal was to raise mothers' awareness to the need for medical supervision during pregnancies and post-maternal care, but this raised a big problem in rural areas: the need to eliminate untrained lay midwives.

Midwives and North Carolina

Lay midwives in the 1930s delivered more than half of all black infants in the United States, and over 80 percent of black infants in North Carolina.[11] North Carolina's rural mothers depended upon midwives for prenatal advice, obstetric care at delivery, and instructions in infant care.[12] In practice, once a midwife received news of her prospective patient, she would visit the mother before the confinement period to see how she was progressing.

Midwives typically did not have any formal education, although a few had gained some experience while observing obstetric cases with physicians; the majority of midwives were illiterate and practiced unsanitary and unscientific methods. If the expectant had symptoms of discomfort or other ailments, instructions to the mother might be to drink herbal tea remedies such as "cidyus elder" for the reduction of swollen hands and feet, burdock and "black draught" for sluggish bowels, or tansy plant to help prevent miscarriages.[13]

Some health officials cited lay midwives as major contributors to infant and maternal mortality.[14] Historian Molly Ladd-Taylor argued that some officials viewed them as hazardous to infant and maternal health, unscientific, and unhygienic practitioners that officials needed to eliminate.[15] Even so, officials debated what to do about the midwife problem. Some argued for the need to support them, while others were ready for their demise.

Historian Gertrude Fraser argued that physicians linked high rates of maternal mortality to midwives.[16] She contended that physicians associated puerperal infections, unnecessary deaths and injury, to untrained midwives, and that the political dialogue in medical journals and societies that portrayed them as unfit to provide obstetrical services was a political construction designed to eliminate them.[17] Fraser reported that physicians misrepresented midwives by suggesting to the scientific profession an association of higher rates of maternal mortality.[18] In fact, in New Jersey, maternal mortality rates for midwife-delivered births, were lower than those attended by physicians.[19] On a larger scale, Fraser purported that midwives challenged the dominance of the medical profession, which she perceived was the root of their contention to eliminate midwives.

North Carolina public health nurse Irene Lassiter, in her report "Problems Involved in Untrained Midwifery," reported that midwives possessed no scientific competency but were necessary to the South until time and education could eventually eliminate them.[20] She characterized them as:

> A necessary evil, for they can go and will go where doctors cannot or will [not]. No night is too cold for her — no swamp too big to cross. Her work is her love — she goes to aid a fellow sister in pain. Her pay is small if she gets any at all. Her virtue lies in the fact that she has no medication to hasten labor — no instruments to cause danger.[21]

Despite Lassiter's comment regarding midwives, there were national leaders who believed that training them was a better solution than eliminating them. Dr. Anna Rude of the Children's Bureau contended that the best and most practical solution to the problem was to elevate

midwifery standards by training them for safer practice of obstetric care, which would ultimately eliminate untrained midwives, and replace them with trained ones. Training the lay midwife became the logical solution that the Sheppard-Towner program chose. Subsequently, practically all-southern states ended up establishing programs to educate midwives.[22]

Fraser contends that the underlying intent of educational midwife programs had long-term and short-term goals.[23] Health officials' long-term goal was to phase-out midwives, and replace them with clinics, hospitals and physicians, while short-term motives were to use them to improve black infant and maternal morbidity and mortality rates.

Both white and black public health nurses played an essential role in training midwives during the Sheppard-Towner period. Nurse Edith Holmes was a black public health nurse hired in 1925 to work with 75 midwives in a rural county of North Carolina. She met weekly with midwives to ensure that they adhered to aseptic techniques and followed demonstrations taught at meetings.[24] Holmes reported that she learned midwife work under the training of Dr. Helen A. Moore, who coordinated a midwife program for the State through Rosenwald Funds. Her responsibility was to check midwives' bags, sterilize cord dressings, and conduct postpartum visits to make sure that an infant's cord dressing and bellyband were progressing safely.[25] In addition, Holmes taught midwives how to provide aseptic care by teaching them how to sterilize their own dressings. According to Moore, individuals could sterilize dressings and cords for navel dressings by placing cords and a medium size potato in the oven of a hot wood stove. Once the potato softened, midwives could consider the cords sterilized.[26]

Sheppard-Towner Activities in North Carolina

Midwife work in North Carolina was a vital part of infant and maternal care. In Lassiter's report, *North Carolina's Program to Promote Maternal and Infant Welfare,* she

argued that midwife work was the biggest part of nurses' work in North Carolina.[27] In 1928, county nurses organized 24 classes with 276 participants in six counties, resulting in 180 midwives completing the six-session course. In sum, the range of effectiveness of the Sheppard-Towner program in North Carolina, reports indicate that the program reached less than half of the state's 100 counties.[28] In 1928 only 40 counties conducted maternity and infancy work, and by the end of the program in 1929, maternity and infancy workers had reached only 49 counties. How effective the program was for North Carolina's rural black infants is perhaps best measured by the rate of reduction in infant mortality. Reports do indicate that infant mortality rates fell overall during the Sheppard-Towner years. For whites, the infant mortality rate was 73 deaths per 1000 live births in 1922, and decreased to 61 deaths per 1000 in 1927. For blacks, overall infant mortality during the same period was 110 deaths per 1000 live births in 1922 and decreased to 100 deaths per 1000 live births in 1927.[29]

However, in North Carolina, this pattern of reduction did not occur for black infants, nor did it occur in the neighboring state of Virginia. In North Carolina, black infant mortality in 1922 was 101 deaths per 1000 live births, but increased to 109 deaths per 1000 live births in 1927.[30] In Virginia, the same effect occurred among black infants. Infant mortality was 102 deaths per 1000 live births in 1922, and increased to 106 deaths per 1000 live births in 1927. During this same period for whites in North Carolina, infant mortality fell from 70 deaths per 1000 live births in 1922 to 66 deaths per 1000 live births by 1927. This same effect occurred in Virginia for white infants. In Virginia, the white mortality rate was 65 deaths per 1000 live births in 1922, and reduced to 62 deaths per 1000 live births in 1927. White infant mortality decreased in both North Carolina and in Virginia, but rates of black infant mortality did not decrease in either North Carolina or Virginia.[31]

To help explain this, particularly when the purpose of the Sheppard-Towner Act was to decrease mortality through educational efforts and medical intervention, I return to my initial argument that rural mothers' socio-economic, educational, racial and environmental conditions were insurmountable even in view of educational efforts to improve these circumstances. One could argue that either Sheppard-Towner officials did not reach out to black rural mothers in a significant manner due to racial, social and environmental conditions or the intended educational goal for blacks went only as far as midwife training.

Although the program effected some improvements for mothers, clearly it was not comprehensive in its reach. Perhaps, within the context of social customs, traditions, and the culture of the rural south, intermingled with poverty, illiteracy, and racial discrimination, health officials had not perceived that to overturn these conditions required more than good intentions and a little education to ameliorate centuries of neglect, isolation, and ignorance. Health officials probably perceived that midwife work was the best and the most effective way to mitigate infant and maternal mortality among blacks. It was not that health leaders did not realize how severe the problem was; Children's Bureau agents had conducted surveys to determine the health status of blacks.[32] Dr. Marvin Graves acknowledged in his treatise, "The Negro as Menace to the White Race," that rather than a problem of their own making, black infant and maternal mortality was in part due to blacks' social and economic conditions.[33] However, leaders likely believed that they were moving in the right direction to resolve what they perceived to be the problem — lay midwifery. Health leaders channeled all their attention toward the untrained lay midwife as a contributor to death among indigent children and mothers, yet overlooked how strong an influence social forces would be to effect change when so little effort was applied to address those conditions.

Mothers perceived lay midwives to be more resourceful than physicians, and reported that they provided more comfort, and charged less than physicians for services—$2 to $3 compared to $10 to $15 for physicians' services.[34] In addition, midwives typically cooked, cleaned, washed clothes, and provided care for other children in the home. Moreover, midwives spent extra time with mothers and remained within the home to care for the infant and mother until her milk came in. Midwives were thus influential and respected members of the rural community. Mothers' respect for midwives and their sensitivity to mothers' needs likely made them more willing to value midwives over physicians.

Did Sheppard-Towner Work Reach Black Mothers in the South?

The Sheppard-Towner Act included an educational initiative for nurses to train both mothers and midwives, but it is unclear how extensive educational activities reached black mothers in the South. Did black mothers receive prenatal education, and if so, how much? Alternatively, was educative work for black mothers only restricted to midwife training? Ladd-Taylor argues that the Sheppard-Towner program did not reach very remote areas of the South, and that some southern states provided inferior services to black communities due to the decentralized authority that the Children's Bureau ceded to states in running the program in their communities.[35] She argued that in the state of Georgia, for example, officials did not provide black nurses with automotive transportation that health officials gave to whites, thus, inhibiting black nurses from reaching midwives for classes and impeding child health conferences between healthcare providers and blacks.[36] Furthermore, she contended that some nurses found it painfully discouraging to work with illiterate midwives, and would sometimes avoid teaching certain maternal information lest they slow the training process. Historian Karen Kruse Thomas

argued that the Sheppard-Towner Act benefitted blacks in only a few southern cities such as Memphis and Houston.[37]

Although Thomas did not explicitly state how these cities benefitted more, perhaps it was because Tennessee and Texas hired black public health professionals to work with midwives.[38] Tennessee hired a black female physician to supervise and instruct the midwife program, and conduct health conferences for black children.[39] The state of Texas hired two well-trained black nurses that conducted itinerant education with midwives, traveled from county to county, visit schools, teach aseptic techniques, train midwives on the danger signs of labor, and know when to call the physician.[40] These nurses also visited mothers to teach them hygiene. Black families were so appreciative of the nurses' work to improve hygiene and living standards that one county in Texas raised enough funds to maintain a black nurse in the district.[41]

In Virginia, physicians led midwife institutes, and one-week institutes for "doctors' helpers."[42] Florida provided special instructions in hygiene and nutrition for black women, while Mississippi conducted classes in hygiene and infant care for young black girls.[43] Physicians offered prenatal care to black mothers who attended prenatal conferences at county centers, but the report did not specify whether physicians offered prenatal care to blacks on a weekly basis at county centers. Tennessee and Georgia leaders prepared copies of instructions to inform midwives on the laws that regulated their practice. In addition, as previously mentioned, Tennessee's black female physician not only conducted midwife training, but also led infant and child health conferences for black children.[44] Midwives were receptive to the training for better obstetric care, and they convinced 28 of their patients to bring infants to child health conferences.

In Georgia, the State Board of Heath received the cooperation of the Negro Medical Association, and offered to hold prenatal clinics for the patients of midwives.[45] In South

Carolina, where 55.2 percent of the total population was black, physicians extended midwife courses to a four-week course of instruction in practical nursing care, nutrition, and bedside instruction in obstetrics.[46] To begin the work, a local physician offered his services to deliver all cases. The state bureau of hygiene sent a public health nurse to be in charge of the work, and employed a black graduate nurse from the Bellevue Hospital training school to assist her.[47] About 30 midwives registered to participate in each of the institutes, and the hospital of a black school became the training ground for this work. The physician delivered all abnormal cases, and the black nurse-midwifes delivered all normal cases. Outpatient services were organized, and student midwives went on cases to deliver patients at home and give postpartum care. It is noteworthy that there is no mention in the data whether the students graduated from the training or received any certificate or award for their studies. There is no evidence to indicate that they received any commendation for their work.

Activities for other racial groups included infant and maternal education among Native American mothers in Minnesota, Nebraska, and Oklahoma.[48] In Minnesota, United States Indian Service leaders, hired Native American nurses to conduct home visits and teach mothers on Indian reservations. In Southwest states—Arizona, Texas, California, and New Mexico—leaders translated maternal and childcare literature into Spanish for distribution among Spanish-speaking mothers; in New Mexico, nurses that worked with Mexican and Spanish American mothers taught midwives special instructions in their own language.[49] Hawaii had the largest population of diverse racial groups, with mothers from Hawaiian, Filipino, Chinese, Japanese, and Portuguese descent. Child health conferences that physicians regularly offered to other mothers also reached these minorities, causing a positive difference in reducing infant mortality.[50]

The Children's Bureau reports cite that the Sheppard-Towner program conducted classes for special groups (physicians, nurses, and teachers) that worked with mothers and children, but it is

unclear whether black physicians and nurses included in these trainings. At these special classes, physicians received graduate instruction in pediatrics and obstetrics, while nurses received special training in infant and maternal welfare at institutes, group meetings, and training centers.[51] In addition, the Children's Bureau indicate that physicians conducted prenatal and child health conferences; it is unclear whether black mothers were included at child health and prenatal conferences that white physicians led.

For example, in the states that hired black physicians such as Maryland and Tennessee, reports indicate that black physicians conducted infant and child health conferences for black infants.[52] According to the guidelines for physicians conducting child health conferences, physicians instructed mothers to bring well children to conferences for examinations by a physician and receive medical advice to keep children healthy.[53] If a child was sick, or had defects, the physician made a referral to a mother's private physician. If the family could not afford a private physician, the physician arranged for a free clinic. In addition, physicians urged mothers to attend child health conferences weekly.[54]

In light of these conditions, these requirements would have been a challenge for rural mothers to comply with, given the frequent scheduled appointments, the distance mothers lived from town, and their work schedules on farms. Unless conferences were located in rural communities that were accessible to mothers, and scheduled during a time they could attend, it would have been difficult for rural black mothers to meet those conditions. Since physicians in an institutionalized segregated society generally held health conferences in permanent health centers or the headquarters of local health departments, it is very probable that white physicians did not conduct weekly health conferences for black mothers and children as recommended by Children's Bureau guidelines.[55] Furthermore, it is probable that despite the severity of needs,

black mothers received less infant and maternal education during the Sheppard-Towner program, although whatever services they received would have been an improvement in care.

The End of Sheppard-Towner

Although Sheppard-Towner activities were credited with reducing infant mortality, increasing the public's awareness of infant and child health programs, and establishing permanent prenatal and child health centers, the bill ended in 1929.[56] The program ended when a surge of political opposition arose from southern legislators, anti-suffragettes, and the American Medical Association. The opponents joined to persuade Congress that the program was fiscally irresponsible, and that it wielded too much governmental control in health and state affairs.[57] They argued that state and local control, not federal control, should lead infant and maternal care. These opponents were critical of the female leaders of the Children's Bureau, particularly because of their unmarried status, yet they gave advice to mothers despite having no children of their own. Opponents of Sheppard-Towner favored the male-dominated national Public Health Service to administer the program instead of women. The progressive leadership wielded by the Bureau's female leaders was counterculture in the male-dominated society, which incited male opponents' gender bias. At the height of this period, women's rights and their role outside the home in the political sphere were heated and contestable topics in society, which may have caused opponents to object to the Bureau's leadership.

Consequently, supporters of the bill to reauthorize it were not able to overcome the flurry of opposition. When the program ended in 1929, it left the nation without a federal program that aided rural indigent mothers with obstetric care that included midwife supervision at the onset of the worst economic crisis in the nation's history.[58] Just when indigent mothers needed maternal support the most through better-trained midwives, the program had ended. Until the government

developed other programs to assist mothers concerning maternal care, the experiences of rural mothers, and blacks in particular, would remain marginalized beyond modern maternal and obstetric care.

Marginal Living

Black indigent mothers shared with their husbands a remarkable history of exhausting labor for subsistence. In many respects, they labored more arduously than men did. Women not only performed the expected duties of washing, cleaning, cooking, and fieldwork, they also endured the added physical and psychological stresses of pregnancy, childbirth, and childrearing. Childbearing women endured poor standards of living, which impaired a mother's health and the lives of her children. They suffered from inadequate nutrition, lived in crowded, unsanitary housing, and endured exposure to heat in summers and cold during winter. Poverty, poor health care, and medical inequities were a deadly combination that compromised health. During and after pregnancies, mothers worked long hours. Pre-existing health conditions such as tuberculosis, hypertension, or kidney disease could compromise both an infant's health and the mother's.[59] Indigent mothers generally faced pregnancy and childbirth without any medical and nursing care. Lack of health care resulted in black infant mortality that was twice the rate of white infants. In fact, during each year of 1933–1935, 94.2 deaths occurred among black infants per 1000 live births compared to 53 for whites.[60]

Reasons cited for infant mortality included natal and pre-natal causes. Pre-natal causes in the first month of life ranged from prematurity, congenital debility, malformations, and syphilis at a rate of 34 deaths per 1000 live births.[61] Other causes of death in the second to twelfth months of life included respiratory and gastrointestinal illnesses due to influenza, pneumonia, diarrhea, enteritis, and communicable diseases such as tuberculosis, whooping cough, and diphtheria.

Non-puerperal conditions caused 25 percent of stillbirths among blacks.[62] In North Carolina, during the years 1922–1924, reports revealed that infant mortality occurred distinctly in rural counties, where blacks were heavily populated. This rate was as high as 25 percent within the age range of birth-to-two years and in some cases, it was 50 percent or more.[63]

A high death rate also occurred among mothers. During 1933–1935, black mothers perished at a rate of 96.1 per 10,000 live births, compared to 56.6 deaths for whites.[64] Mothers would frequently continue work until the confinement period, making little changes in their chores, which added to negative outcomes of maternal health. If a confinement period was during the time of planting, chopping, or plowing cotton, there was little time added in a mother's schedule for rest.

A lack of education among rural mothers also contributed to poor infant and maternal outcomes. Illiteracy in early twentieth century was a problem among all races, ages, and gender in the United States and thrived especially in communities that were remotely isolated.[65] Among foreign-born whites age 10 years and older in 1920, illiteracy was 13 percent; among native-born whites, it was 2 percent compared to 23 percent for blacks (See Table 1).[66]

Table 1. Illiteracy in the United States (Percentage)

Year	Total	White		Foreign Born	Nonwhite[a]
		Total	Native		
1910	7.7	5.0	3.0	12.7	30.5
1920	6.0	4.0	2.0	13.1	23.0
1930	4.3	3.0	1.6	10.8	16.4
1940	2.9	2.0	1.1	9.0	11.5

[a] Nonwhite in large measure (more than 95 percent) applied to African Americans. The bulk of the remainder was Native Americans. Source: Wattenberg, Statistical History, 382.

Because educational policies in the early half of the century were state controlled, the South did not prioritize education for indigent citizens. Historian Edward Beardsley argued that due to poverty, legislators perceived that there was very little that they could gain from the poor; therefore, they were neglectful towards helping blacks improve their quality of life.[67] One area where southern officials wielded their dominance to uphold segregated policies and laws was education. Educational discrimination was particularly virulent and widespread throughout the South to keep rural blacks from envisioning a better life. One way to keep rural blacks from progressing was to discourage literacy by limiting educational opportunities. In the rural South illiteracy abounded (See Table 2). Southern leaders made few attempts to improve educational conditions for they professed that blacks were not particularly capable of sophisticated learning.[68]

Table 2. Illiteracy Rates of Black People by Section, 1910–1930

	Percentage by Decade		
Section	1910	1920	1930
North	10.5	7.0	4.7
West	7.0	4.9	3.3
South	33.3	26.5	19.7

Source: Bureau of the Census, Negroes in the United States, 1920–1932, 233.

Few schools were located in rural communities for blacks, and the ones that existed were inept, lacking supplies needed for learning. Nathan Carter Newbold, director of the Division of Negro Education in North Carolina in 1933, described the condition of black schools as "pathetic." Schools were overcrowded structures, with some classrooms with 60 to 100 pupils to a room that lacked books and desks.[69] Schoolhouses were typically dilapidated one-room

buildings located miles from where students lived. School terms were short; a typical school year was 100 days, and elementary grade levels often went only to the fourth grade. Even with shorter school terms, students missed several days during crop-harvesting seasons. Conditions for high schools were not much better; attendance was low, a mere 7 percent of blacks attended high school compared to 17 percent for whites in the 1930s.[70] Some rural districts did not have a high school, leaving hundreds of students without a place to further their education beyond elementary grade level.

North Carolina's rank in education in 1930 was thirty-eighth in the Union, with other southern states, Mississippi, Virginia, Georgia, and South Carolina trailing behind respectively at forty-third, forty-fifth, forty-eighth and forty-ninth.[71] Almost half of the adult black population in the South had about five years of schooling. In 1940, the level of schooling for nonwhites, age 25 years and over with less than five years of schooling, was as high as 49 percent compared to 16 percent for whites.[72] The median years of completed school was 5.0 years.

To improve literacy in North Carolina, some counties in the mountain region of the state provided adult education classes called "Moonlight Schools." These schools taught literacy at local public schools during the moonlight hours, but it is not clear whether officials provided such schools for blacks.[73] Literacy skills were necessary to mothers' ability to read and comprehend child-care literature. Without these skills, an individual would likely have been unable to perceive the value of maternal and infant health literature or unable to comprehend its worth. Furthermore, without literacy skills, mothers were unlikely to attempt a request for free literature that North Carolina's State Board of Health offered to all mothers.

A study by demographer John Caldwell argued that utilization of child health services was associated with mothers' maternal education.[74] Caldwell suggested that educated mothers were better able to access medical services, to follow up on care, and to engage in practices to promote

child health. In North Carolina, one of the primary ways of communicating prenatal education to mothers was through literature.[75] The Children's Bureau in 1928 distributed information on prenatal and confinement care to expectant mothers from 24 states, and North Carolina was one of those states. The Bureau distributes literature through a series of prenatal letters, one mailed each month; in fact, the state reported the largest number of new enrollees (9,522) requesting literature, more than any other state. The State Board of Health distributed a monthly series of prenatal letters, mailing as many as 127,200 pieces of literature during the year. Although this method of communication was effective among a literate population, it excluded a large segment of rural mothers with limited education.

Some health officials frequently perceived rural residents as incapable of learning personal and household hygiene. Visiting nurse Ann Doyle described her observation of rural blacks' mental capacities as an inherited feature, which limited their ability for learning.[76] She argued that blacks' deficiencies were a product of genetic factors, disregarding environmental, social, and racial factors that marginalized populations. All of these factors frequently perpetuated a system of institutional racism, which hindered blacks from employment and educational opportunities, political rights, and equal access to medical and nursing care. In the South, blacks lived under a racially segregated society policed by Jim Crow laws that legalized a system of injustice and violence, condemning them to the lowest paying jobs, inadequate housing, no system of adequate or culturally sensitive health care, and poor educational opportunities for their children. As conditions continued to worsen, and as the demand for more laborers increased during the Second World War, blacks took flight to the North and to other urban areas in search of a better life for themselves and their families.

Blacks Leave the South

Over the course of the first half of the twentieth century, approximately 2.5 million blacks left the South for urban areas, causing substantial losses to the South's economy and labor base. Both married and single black men and women left southern rural areas in response to widespread racial discrimination, injustices, and poor wages.[77] In cities, blacks hoped for equality and a better life—higher-paying jobs and educational opportunities for their children. In cities, blacks had more exposure to medical care from free clinics and hospitals, employment other than agricultural labor, and exposure to the black media—newspapers and pamphlets, which informed readers of news and activities important to blacks concerning jobs, social and political issues, art, science and, more importantly, health care.

In the North, blacks also had more exposure to education from their children, which improved their literacy skills. Educator, Robert A. Margo argued that the spread of literacy among southern blacks was because of children's access to the educational system.[78] An individual within the household with literacy skills had the potential of increasing mothers' access to understanding mainstream health care knowledge.

Historian Townsand Price-Spratlen argued that when blacks moved to urban areas, they felt more at ease about migrating to cities when there were signs of "ethnogenic" support—proof of a black culture present within urban communities.[79] Examples of social determinants that undergirded black culture included black newspapers, support for employment, churches, and volunteer organizations such as the National Association for the Advancement of Colored People (NAACP), and the National Urban League. Price-Spratlen argued that black newspapers influenced blacks to make a decision concerning their viability in cities. Black newspapers supplied the most influential information that informed readers about methods of healthy living, as well as articles that pertained to maternal health and childcare written by black physicians.

More importantly, the black press provided evidence that there were black mothers in the cities that bottle-fed (See Appendix C).

During the 1930s and 1940s, blacks published articles in women's sections of the *Baltimore Times,* the *Chicago Defender*, the *Pittsburgh Courier,* and the *Norfolk Guide* to name a few. Advice to mothers ranged from the importance of breastfeeding to bottle-feeding articles. Included in these articles was information on artificial feeding, the necessary supplies needed to bottle-feed, and the safety precautions to prevent sickness, especially during the summer months when temperatures rose (See Appendix C). In addition to maternal advice, milk companies pitched advertisements promising a healthier baby to mothers. Eagles' Brand milk promised to produce a healthy infant, and to relieve infants of colic. Carnation milk, one of the most popular milk products, displayed its product using pictures of black infants, mothers, and black professionals espousing the product's efficacy on infant feeding (See Appendix C). These advertisements communicated to black mothers that their infant could be as healthy like infants shown in advertisements if they fed their child Carnation milk. The textual content of these images stated how more doctors chose Carnation Milk, and a black nurse supervisor stated how she used Carnation milk for her own son. These images and textual context likely influenced mothers' attitudes about infant care and feeding and reshaped their behavior toward modern ways of infant feeding, especially among members of the black middle class who adopted scientific technology as a means of social uplift. Working class black mothers who had migrated to cities would also desire to provide the best for their infants.

The organization most involved in assisting blacks in transitioning to city life, and to adopt scientific behavior patterns, was the National Urban League. The Council for Social Services was the original creator of the League in 1915 to help blacks find work and acclimate to city life. The League played a tremendous role in introducing migrants to available health

services in the North, especially among women. When rural mothers arrived to cities, leaders advised them to adopt modern ways of scientific care, and referred them to resources to assist with work and family life, and to abandon home remedies for illnesses, but seek medical care rather than practice the old ways of the South.[80] League agents encouraged mothers to get prenatal care for pregnancies, and to seek hospital births under medical supervision instead of using midwives. The League organized clubs and committees to study childcare problems, facilitated educational lectures on health topics such as sex hygiene and nutrition conducted by black physicians, nurses, and dentists. It also subdivided the city into districts so that a network of health services from city hospitals, health agencies, clinics, dispensaries, and social agencies were available to residents in various neighborhoods. Additionally, the League distributed health pamphlets from the government that educated mothers concerning infant and maternal health. These were new concepts of health education for rural mothers that were likely different from the traditional customs and superstitions of the South. Health education in the North was influential in transforming beliefs on childcare and infant feeding beyond lessons learned in mothers' networks by mothers, midwives, and friends. These concepts of health education, created new concepts and behavior concerning childcare and infant feeding that were influential in transforming mothers' adoption of new patterns of behavior concerning infant feeding beyond the methods learned in the South from their network of mothers, grandmothers, and midwives.

Obstetric Care in the City

Obstetrical care in large cities was different for black mothers who migrated from the South. Traditionally, rural blacks delivered infants in the home setting with the assistance of a midwife attendant. However, in cities, a hospital birth was a common practice. Hospitals were clean and places where mothers could rest from daily routines during their stay while nurses

waited on them under physicians' care.[81] However, black rural mothers' experience of hospitals was not always a welcomed experience. Historian Jacqueline Litt, describes one rural mother's experience as cold, lonely, and isolated.[82] The mother voiced her experience as being alone, interrupted only by the occasional entry into the room when the doctor entered to examine how far long she had dilated. With his prodding, she described the vaginal examination as more painful than her confinement with a midwife. This mother seemingly preferred her traditional pattern of delivery with people that she knew that supported and cheered her on. Societal changes, race, environment, changing maternal role, new work experiences, all influenced how mothers viewed their lives, and what they wanted for themselves and their families. Midcentury twentieth century would change the lives for everyone, and with those changes came new patterns of infant feeding.

The new roles that women embarked upon to meet the demands for work, home, and an unforeseen future may have influenced the trend of bottle-feeding for black mothers. Their need for work, and new employment opportunities likely influenced their lives. The next chapter will explore how these changes, and other social trends of the mid-twentieth century would affect infant feeding patterns for rural black mothers.

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45. U.S. Department of Labor and Children's Bureau No. 156 Publications, The Promotion of the Welfare and Hygiene of Maternity and Infancy, (Washington, DC Children's Bureau., 1925), http://search.lib.virginia.edu/catalog/012480479. Journal/Magazine; Government Document; Online., 69.

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47. Labor and Publications. 129.

48. Ibid.; The Promotion of the Welfare and Hygiene of Maternity and Infancy; "The Administration of the Act of Congress of November 23, 1921, for the Fiscal Year Ended June 30, 1928," *Social Service Review*, Vol. 3, no. 4 (Dec., 1929) 708–710.

49. "The Promotion of the Welfare and Hygiene of Maternity and Infancy," *Children's Bureau 156* 156 (1926).

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63. North Carolina Board of Health, "Twentieth Biennial Report " in *Aims and Purposes* (July 1, 1922- June 30, 1924), 64.

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65. "A Graphic Comparision of the Extent of Illiteracy in North Carolina," *North Carolina Health Bulletin* 30, no. 8 (November 1915).

66. John K. Folger and Charles B. Nam, *Education of the American Population* (Hathi Trust Digital Library: U.S. Department of Commerce: Bureau of the Census, 1967).; Ross Gregory, *Modern America 1914 to 1945* (New York: Facts On File, 1995), 302. By the 1940s the median experience in school for Americans over age twenty-four—the normal years for schooling—was barely past eighth grade.

67. Beardsley, 130.

68. Ross Gregory, *Modern America 1914 to 1945*, ed. Richard Balkin (New York: Facts On File, 1995).307. Educational discrimination in the South was a consequence of racial public policy and custom. The factor that most determined the status of blacks' education was that it took place largely in the South. Illiteracy rates for blacks outside the South were not vastly higher than the national average. In the South all the forces on black education were to drive down its quality and quantity.

69. Crow, Escott, and Hatley., 136.

70. Ibid., 136.

71. Ross Gregory., 304.
Ranking was based on a system worked out by Frank M. Phillips, Chief of the Statistical Division of the U.S. Bureau of Education in 1930. The ranking is based on the following statistics: Percentage of Illiteracy, 10 years and over; Ratio of Average daily attendance to population of school age; Percentage Enrollment in High School; Average Daily Attendance by Each Pupil Enrolled; Average Number of Days School in Session; Ratio of Students Training for Teaching to Teachers Employed; Total Cost (ex. salaries) per Pupil in Average Daily Attendance; Average Annual Salary of Teachers, Principals, and Supervisors; Total Amount Spent per Child of School Age; and Percentage of High School Graduates Continuing Education. Source: Lincoln Library of Essential Information, 1,666.

72. Ibid., 308. The term nonwhite referred to several racial groups, it was largely made up of blacks. The statistics provide a fair representation of the level of education of black people. Source: Department of Commerce, The Social and Economic Status of the Black Population in the United States, 1790–1978 (Washington, D.C. , 1979), 93.

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Chapter 4—The 1940s and Beyond

In the late nineteenth century, the public viewed maternity hospitals as places of charity for destitute mothers to give birth. However, by the 1920s, leaders had transformed the image of the hospital as the safest place for mothers to deliver their infants.[1] No longer viewed as a place of charity, the hospital eventually became a favored venue for affluent mothers. Mothers raved over the superiority of the hospital birth experience, praising its safety, comfort, and ability to provide a pain-free delivery.[2] Because of these factors, hospital births became a trend as mothers began to view hospitals as the best and most efficient place for delivery.[3] One consequence of this trend was another phenomenon that took place — the trend toward bottle-feeding.[4]

In this chapter, I will argue that hospital birth access influenced, and set in motion, bottle-feeding among black rural mothers in the 1950s and 60s. By the end of the 1950s, breastfeeding rates fell to 42 percent among black mothers, and dropped even further to 24 percent by the early 1960s.[5] During the pre-war years, rural mothers became beneficiaries of federal programs that influenced maternal health and infant care.[6] In 1935, President Franklin D. Roosevelt signed into law the Social Security Act, which awarded state grants for improving the health of rural mothers by establishing prenatal and maternity clinics in economically depressed areas. State boards of health established these clinics primarily for indigent mothers that ushered in science-based maternity education and health care in rural communities, which black mothers attended zealously.[7]

One of the largest federal health programs that influenced maternal obstetric health and initiated the trend for hospital births was the Emergency Maternity Infancy Care (EMIC) Act of World War II.[8] The program offered free medical and hospital care to wives who were dependents of soldiers in the four lowest pay grades of the armed forces. The EMIC program not

only granted those mothers the privilege of free obstetric care, but it improved medical services by rallying health officials to upgrade the standards for hospitals across the nation.

Hospital access due to the EMIC program provided high-quality healthcare for low-income mothers. It helped reduce infant and maternal mortality by influencing mothers' realization of the importance of obstetric care.[9] These concepts persisted, for by 1950 almost 90 percent of mothers had their infants within hospitals.[10] One unintended effect of the program was an associated trend of bottle-feeding, a practice that can still be seen among low-income black mothers, who rely on it excessively as a pattern of infant feeding.[11] In addition to arguing that hospital exposure influenced black mothers' traditional infant feeding pattern, in this chapter I will discuss how the EMIC program increased rural mothers' access to hospital births, and how the nurse's role influenced infant feeding.

The Need for EMIC

Before entering World War II in 1941, the United States had already begun to dispatch soldiers to military training camps across the nation. As soldiers left for training posts, their wives crammed into military camps and surrounding towns to be near them. Many of these wives were pregnant and over time, the number of expectant mothers increased, causing the situation around military towns to become a crisis. The situation created problems in the infrastructure of nearby towns and hospital facilities because these areas could not meet the growing demand for housing, food, and medical care needs of women and children.[12] Many of the wives gave birth under substandard conditions because they could not afford to procure existing medical services.

Fort Lewis in Washington State brought the situation to the attention of the state's health department, which reported that it was unable to provide sufficient maternal services.[13] State

leaders contacted the U.S. Children's Bureau for help to request funds from the Social Security Act Title V funds earmarked for emergency needs. The Bureau quickly approved the funds, and other camps organized similar plans, but this was not enough financial support.[14]

Soldiers later became concerned about deployment overseas, the care of their wives in their absence, and the cost of medical and hospital services.[15] When the problem came before Congress, a national program to ameliorate soldiers' concerns and to support their wives began to take shape. In an effort to amend the acute situation and boost the morale of soldiers, the government instituted the EMIC program for the wives and infants of soldiers in the four lowest pay grades of the Armed Forces. Eighty-seven percent of soldiers fell within this category.[16] Upon passage of the program, soldiers' wives in these pay grades became eligible for the program regardless of financial status or place of residency, and without respect to race or color.

A large number of black soldiers served in World War II. In fact, approximately one million black soldiers served primarily within the U. S. Army.[17] To the wives of black soldiers in these four pay grades, EMIC was a boon. For despite an intact system of racism during this period, and the military's maintenance of racial codes as well as a legalized system of segregation in the South, low-income black mothers and their infants became entitled to free medical, obstetric, nursing and hospital care.[18] These services were a tremendous advancement in black infant and maternal health because for many this would become their introduction to mainstream obstetric and hospital care.[19]

EMIC and Hospital Standards

The EMIC program was the largest federal health program designed for a select group of military dependents that called for the highest standards in medical and nursing personnel and

hospital facilities.[20] The Children's Bureau required that physicians who would be eligible as health providers should be graduates of a medical school approved by the Council of Medical Education and Hospitals of the American Medical Association (AMA), and licensed to practice in the state in which they provided services.[21] In addition, the requirements stated that pediatricians and obstetricians must be certified by their respective specialty boards, or have training and experience that met the requirements for such boards. As consultants for the state boards of health, they should be available as needed to work with general practitioners. [22] Nurses were required to have special training, too. The Children's Bureau authorized each state health agency to ensure that nurses and physicians meet bureau standards. Nurses were required to be registered graduates or eligible for registration by a state board of nurse examiners, and to have training and experience in maternity and or pediatric nursing.[23]

The Bureau also set standards for hospital facilities. Bureau officials required that any hospital authorized for the EMIC program must receive approval by the American College of Surgeons or state agency, and meet local regulations for fire protection and sanitation to accept obstetric patients.[24] Buildings had to protect patients from insects, flies, and mosquitoes. Windows had to be adequate and screened, and rooms had to provide proper light and ventilation, as well as protection from hot and cold weather with a system of uniform temperatures in delivery rooms and nurseries.[25] Clinical and laboratory equipment had to be available for emergencies, and available on a regular basis for complete medical care.

Not every hospital was able to meet minimum standards set by the bureau, some hospitals could upgrade to higher standards better than others could. Bureau leaders advised that state agencies develop a set of requirements that were as high as practical under existing conditions then consider raising the requirements as soon as possible. [26]

Hospital requirements elevated hospital standards. Not only did the program raise the standard of medical care and provide safe and protective environments, it rallied the nation, focusing hospital leaders' attention to a central problem to accomplish a system of improved maternal care and hospital services.[27] As far back as the late nineteenth century, hospital leaders had recognized the need to establish hospital standards, and voluntarily organized a set of codes by which like-minded officials could improve hospital care.[28] They incorporated what they believed to be essential methods of improving knowledge, care, and equipment to guide them in providing an "excellence of service" to the sick and injured; these actions spearheaded the Hospital Standardization movement. Leaders thus recognized this need before the EMIC program began, but it was not until the Children's Bureau required improvements that many hospitals realized comprehensive upgrades.

Historian Edward Beardsley has argued that because of EMIC, hospital reform occurred earlier than it would have otherwise; it offered the prospect of hospitals and medical providers sharing in what would become a $122,000,000 federal purse.[29] The possibility of federal funds provided an incentive to state health agencies to come to an early agreement. In spite of quibbles over appropriate fees for hospitals and provider services, arguments over federal agencies imposing upon patient and provider relationships, and the incessant complaint of health programs that bordered on socialism, the EMIC program opened the door to free hospital care for a select group of indigent mothers.[30]

EMIC Opens the Door

The EMIC program provided a hospital birth experience for eligible low-income black mothers by removing economic and racial barriers.[31] Generally, black rural mothers were unable

to pay the cost of procuring a physician for prenatal services and a hospital birth, which essentially relegated their obstetric experiences to lay midwives.[32]

A critical aspect of the door that EMIC opened was that it disregarded the racial barriers that kept black mothers marginalized from mainstream health care. The good news about the program for black mothers was the access to equal healthcare despite racial prejudices that were prevalent during the period. One example that attests to the Bureau's commitment to advocacy regardless of racial codes is an account given by nursing historian Nena Patterson, who cited two black mothers enrolled in the program that delivered at the all white private hospital, St Josephs in Tacoma, Washington.[33]

Patterson's account suggests that it was remarkable that the hospital did not deny the mothers care on its ward in the first place. However, hospital officials did request that the state health agency pay a higher amount than the agreed-upon rate because they assigned the mothers to private rooms after delivery, presumably to keep them separate from white patients.[34] Under Bureau policies, payment for services was a set rate that hospitals agreed upon, and EMIC rates did not cover private rooms. The Bureau objected to the request, and stood its ground to pay only the agreed-upon amount for hospital services. Further, the Bureau maintained that it would not be subject to paying a higher fee due to racial prejudices.[35]

Nurse midwife and historian Elizabeth Tempkin argued that the EMIC program played a significant role in increasing hospital births that advanced mothers into maternity wards.[36] In the general population in 1943, 72 percent of mothers chose a hospital delivery.[37] However, among EMIC recipients in 1944–1946, 92 percent of EMIC beneficiaries experienced a hospital birth compared to 76 percent in the general population.[38]

Hospital births supported by EMIC funds exceeded the number of births in the general population, with almost three-fourths of the states reporting that 90 percent of maternity cases were due to EMIC recipients.[39] At its apex, the EMIC program influenced virtually every community across the nation, and significantly opened doors to hospital care in the South (See Appendix D Figure D.1). The EMIC program very likely was the impetus to motivate mothers in the South to obtain a hospital birth. Without its assistance, southern mothers likely would have chosen a lesser quality of obstetric care from lay midwives. Perhaps, it was not that the poor were unreceptive or superstitious of hospitals, as some physicians characterized them, but that before the EMIC there were limited options and incentives for the poor to obtain high-quality science-based care.[40]

In Mississippi, a home birth delivery was traditional, but the effect of EMIC reversed the home-birth custom in favor of hospitals.[41] In 1944, only 30 percent of mothers in Mississippi delivered in hospitals, but because of EMIC benefits, more than 70 percent of mothers in Mississippi experienced a hospital birth[42] (see Appendix D Figure D.1). In other southern states, an increase in hospital births occurred. In South Carolina, during the same year, the rate of hospital deliveries in the general population was 40 percent, but where state agencies provided EMIC assistance, the rate increased to 85 percent[43] (See Appendix D, Figure D.1).

Another federal health program that influenced national health care was the Hill-Burton Act that Congress established to build a national health infrastructure and to increase hospital beds in underserved areas throughout the nation (See Appendix A).[44] Congress passed the Hill-Burton Act in 1946, just as the EMIC program was ending, in response to the growing demand for more general hospital beds. The high standards that the EMIC program set for hospitals, and

post war population growth resulted in increased hospital use, and a growing demand for hospital beds.[45]

In the South, the need for hospital beds was significant. North Carolina in 1944 - ranked 42nd in the number of hospital beds per 1000 population, and out of the state's 100 counties, only 66 counties had hospitals to served 84.4 percent of the population, leaving 34 counties without hospitals for 15.6 percent of the population.[46] The minimum approved number of hospital beds in the state was four per 1000 population, but in the eastern and western areas of the state, the lack of beds for both white and black citizens was dire. In the eastern part of the state, there were only 1.59 beds for every 1000 white citizen and 0.92 beds for blacks. In Western counties, the number of beds improved to 2.43 for whites and 2.38 for blacks, although the number of general beds was still inadequate.

The mission of the Hill-Burton Act was to provide construction loans and grants to states to build and modernize hospitals, public health centers, and nursing homes in needed areas, whereby the federal government authorized $75 million annually for five consecutive fiscal years to facilitate hospital infrastructure, and raised the amount to $150 million in 1949.[47] One of the conditions required of health facilities that received federal aid was they could not discriminate based on race, color, national origin, or creed; yet, health facilities that provided separate but equal services to minorities on segregated floors and wards were considered non- discriminatory under segregation laws.[48] Despite its benefits, there were critics of Hill-Burton Act that believed the program did not do enough to end segregation in health care, and that it actually strengthened institutional segregation instead of working to resolve it. Edward Beardsley argued that Hill-Burton provided significant benefit to rural blacks that were able to obtain quality care even if it was on segregated wards.[49]

Association between Hospital Births and Bottle Feeding

As the hospital birth trend advanced across the nation, health officials observed an associated decline in breastfeeding.[50] This trend caused physicians to question the incidence of breastfeeding in U.S. hospitals in the late 1940s. Researcher and physician Katherine Bain conducted the first national survey to determine the prevalence of breastfeeding. She sent questionnaires to the 3,500 U.S. hospitals that had maternity services with twenty-five or more beds to determine the type of infant feeding.[51] Bain asked hospital officials the type of infant feeding at discharge, whether breast only, a combination of breast and bottle, or bottle only, and classified infant age as less than eight days or eight days and over. To determine regional differences, Bain classified urban and rural areas according to population and proximity to densely populated area. Metropolitan surrounding counties (urban) represented areas of 50,000 or more in population that formed a metropolitan medical service center, while isolated counties (rural) were areas with fewer than 50,000 residents, and not located near a metropolitan center.[52] Bain examined size of each hospital, as small (25–99 beds), mid-sized (100–249 beds), and large (250 or more beds).

Bain discovered in 1946, that 38 percent of discharged mothers were breastfeeding their infants, while 35 percent bottle-fed (See Appendix D Table 4.1). In addition, she discovered that geographical region, size of birthing hospital, and length of hospital stay affected infant feeding patterns. Among geographical areas, more women breastfed from isolated counties (46 percent), while mothers in metropolitan or urban-adjacent counties, breastfed at 36 percent. The bottle-feeding only rate in metropolitan areas was 38 percent and 26 percent in isolated counties (See Appendix D, Table 4.1). More mothers bottle-fed in industrialized northeast metropolitan areas than in any other geographical region.[53]

Bottle-feeding rates were lower in the Southeast and Southwest regions (See Appendix D, Table 4.1) at a rate of 18 percent.[54] Possible explanations for lower rates of bottle-feeding in the South were likely due to geographical and educational remoteness, less access, and influence of science-based maternal education taught by physicians, and nurses at medical facilities. In addition, the South's traditional cultural beliefs, a system of racial inequities, and a history of recalcitrant poverty kept poor residents within a cycle of traditional customs. Rural blacks lacked economic and political influence to change their social and economic conditions. Thus, rural mothers continued traditional forms of infant feeding until resources improved that provided them with greater access to mainstream health services. Bain's study also discovered that the length of a mother's stay in the hospital influenced bottle-feeding rates. The longer a hospital stay of eight days or more, the greater the rate of infants discharged on bottle-feeding, while infants discharged in less than eight days were more likely to go home breastfeeding (See Appendix D Table 4.2).[55]

In another infant feeding study in 1956, physician Herman Meyer examined the infant feeding practices of 1,904 hospitals to determine any trend regarding bottle-feeding. Meyer discovered that breastfeeding in the U.S. had significantly decreased in a matter of ten years.[56] It is significant to note that unlike Bain's findings in 1946 that discovered that bottle-feeding was lowest in the Southeast and Southwest regions, Meyer observed that in a ten-year span, bottle-feeding had increased in those areas, and in all geographical regions.[57] In the general population in 1946, only 35 percent of American mothers bottle-fed; by 1956, the rate had increased to 63 percent (See Appendix D Table 4.3).[58]

In states where black mothers traditionally breastfed, infant feeding pattern began to change. In the 1940s, breastfeeding among blacks had been as high as 73 percent, but by the 1950s, the rate had fallen to 59 percent.[59] In Mississippi, where a large population of blacks resided, the rate of bottle-feeding rose significantly. Meyer noted in 1946, that in Mississippi only 14 percent of mothers bottle-fed, but in 1956, that rate had risen to 74 percent [60] (See Appendix D, Figure 4.4). In other Southern states (North and South Carolina, Virginia, and Arkansas), bottle-feeding rates in 1956 were over 60 percent.[61]

Milk and the Power of Influence

By the 1950s in American hospitals, more infants were bottle-fed with house formulas than breastfed. In Meyer's study, which involved over 2.2 million infants, 82 percent of hospitals fed infants a house formula that physicians or a committee of physicians ordered.[62] House formulas were "one-size-fits-all" milk recipes that hospitals used to feed all healthy infants in the nursery.[63] In cases of illness, a pediatrician would substitute an order of a special formula.

During World War II many hospitals and military installation nurseries used house formulas made with evaporated milk, which was easy to prepare, available in practically every community, convenient, and affordable.[64] Physicians recommended the formula and reported that infants adjusted to it well because it caused less regurgitation and abdominal distention. Although infant care was a major feature of the EMIC program, it is unlikely that the bureau provided mothers with infant formula and bottle-feeding supplies. There was no evidence in reports by Nathan Sinai or Martha Eliot to indicate that mothers received infant feeding supplies.[65] Perhaps, due to the convenience and affordability of evaporated milk, the Children's Bureau perceived that the product was within economic means of mothers and soldiers.

Producers of infant formula used subtle influences of authority to increase their marketing potential. Aware that mothers would likely presume that what the hospital endorsed was best for the infant, milk producers frequently supplied hospitals with their brand of milk at no cost.[66] A later study conducted by psychologists Robert Cialdini and Melanie R. Trost described this type of strategy as "authority influence." Milk producers associated infant feeding products with physicians because of physician status, which gave them legitimate authority as experts on the subject of infant feeding.[67] Cialdini and Frost's research theorized that individuals tended to obey authority figures.

Dr. Benjamin Spock was a celebrated twentieth century pediatrician whose stature caused mothers to follow his teaching on childcare. Spock became famous through his many books on child-care, which advocated an expert common-sense approach to child training.[68] Unlike other pediatricians that stressed rigid schedules concerning infant sleep, feeding, and potty training, Spock reduced the anxiety of millions of mothers concerning infant care. He emphasized to mothers, that it caused no harm if they preferred to feed infants on an irregular self-demand schedule instead of following rigid routines. These and other common-sense recommendations caused his books to remain on the bestseller list for decades.

Physicians' and nurses' attire also symbolized authority and knowledge. White coats, nurses' uniforms, and the "Doctor" title were symbolic enough to mediate the mechanisms that governed authority influence. In addition to symbolic attire and title of doctor, the setting also had the ability to influence a response. The closer an individual's physical proximity was to the source of influence, the greater the influencing effect to produce conformity to values and attitudes.[69] The hospital setting exposed mothers into close proximity to medical and nursing experts, which could increase the potential to change attitude. In view of this theory, mothers

who received maternity care would encounter legitimate authority figures, during the prenatal period, and hospital stay, which had the potential to influence an effect on infant feeding patterns.

During the 1940s and 1950s, physicians wielded their knowledge in a paternalistic and authoritative manner. A male-dominant organizational structure within hospitals placed physicians in charge; nurses and patients were to obey orders. Influence theory contends that individuals with authoritarian beliefs are more likely to defer to authority directives; that is, people inclined to respect authority are more likely to obey authority figures.[70] During the mid-century era, low-income mothers who encountered the hospital setting may have been more likely to comply with authority structures, particularly the instructions and demonstrations that the hospital assigned nurses to teach mothers about infant feeding.

In an article in *Hygeia* magazine titled "Hospital Baby," Irma and Gladys Fuehr stated that in all good hospitals the routine care of an infant was similar, which implied that the training that nurses gave was relatively the same across hospital facilities.[71] The Fuehrs advocated that mothers should leave the care of the baby to the trained nurse who knew what would make a baby healthy and comfortable. That remark was likely meant to assure mothers that nurses were well trained to care for their loved one, and that there was no need for concern, but it could have been interpreted by some mothers that it is much easier for nurses to perform their job if there were no interruptions with questions about infant feeding. The nurse and pediatrician were the recognized experts of infant feeding; therefore, for low-income black mothers, this situation may have been especially intimidating considering their extensive history of racial deference to white authority in social, economic, educational and medical aspects of life. These mothers had limited autonomy to voice opinions and desires in institutional settings, which would have limited their

ability to voice any opinions regarding infant care and feeding, and who were those marginalized mothers to rebel against the superiority of a system of organized knowledge?

The organizational structure of the hospital consequently, on occasion, created an inequitable situation for some mothers desiring to breastfeed. If there were problems such as difficulty latching on or engorgement, hospital policies required nurses to supplement infant nutrition with bottle-feeding. Mothers who desired to breastfeed were probably not prepared to have their pattern of infant feeding not valued. In cases of long hospital stays where mothers remained in hospitals for eight days or more, the chances of a bottle-feeding increased, which made breastfeeding more difficult for mothers to achieve successfully. When an infant received bottle-feedings, the chance for nipple confusion increased. Nipple confusion occurred when an infant was bottle-fed with an artificial nipple rather than receiving nourishment from the breast of the mother. Once an infant adapted to sucking on an infant bottle, it was generally confusing and frustrating for an infant to switch back to sucking milk from a mother's breast. The infant could become inconsolable, causing mothers to give up their attempt at breastfeeding and switch to bottle-feeding.

Infection Control and the Nurse

A primary role of the hospital maternity nurse was routine care to protect mother and infant from infection during the hospital stay. Physicians and hospital leaders believed that infants and mothers were very susceptible to infection after delivery, which made the possibility of illness in newborn nurseries a perceived threat; therefore, the combination of fear and hospital convenience made the "hospital birth experience" an artificial, mechanized process.[72] Hospital officials feared that infants could contract scarlet fever and diphtheria from mothers and

therefore focused their services on infection control throughout the birthing process, even at the expense of excluding mothers' emotional needs and desires to quickly bond with their newborns.[73] Hospital officials adhered to strict policies that reduced illness through separation of the patient from potential sources of infection; thus, hospitals separated mother and infant on different wards. Consequently, bottle-feeding served hospitals as a method of providing infant nutrition while maintaining interventions to prevent illnesses. However, these policies decreased the opportunity for mothers to bond with their infant soon after birth, and to learn how to adapt to breastfeeding.

The nurse proceeded to care for the newborn as soon as the mother delivered her infant, allowing only brief moments to view her long-awaited arrival. Mothers did not have immediate contact to bond within the first hour or two after birth. Nurses would whisk infants away to perform routine care.[74] The nurse first wrapped the infant in a blanket to maintain the body temperature. To prevent infection, she administered silver nitrate drops in each eye. She weighed and took the temperature of the infant; if there were any abnormalities, she immediately reported her findings to the pediatrician. She bathed the infant in mineral oil to cleanse the skin and to remove the vernix caseosa; the infant then received a second bath with soap and water. Finally she gave the first feeding, which was a glucose-water solution, or in some hospitals a tea solution.[75]

Nurses brought infants to mothers at scheduled periods at four-hour intervals for feeding, either to breastfeed or bottle-feed.[76] Some infants in newborn nurseries received the first breastfeeding twelve hours after delivery, and bottle-feeding after twenty-four hours.[77] Many mothers accepted bottle-feeding as a safe and convenient method of infant feeding, and some

physicians approved it because nutrition science had perfected cow's milk formulas so that infants could thrive.[78]

In the hospital, as early as the mid- 1920s nearly all infants were bottle-fed.[79] Hospital policies made minimum accommodations for mothers' needs concerning breastfeeding because breastfeeding concerns took time and emotional investment. In fact, Kirsten Toverud, international expert in maternal and child nutrition during the 1950s, discovered that some nurses and physicians felt justified in advocating bottle-feeding rather than breastfeeding because of the relative ease, and reasonable success of artificial feeding.[80] The time spent training mothers and the emotional and social investment in the relationship, the problems associated with breastfeeding, such as difficulty with latching on, and engorgement could be avoided with bottle-feeding. Toverud lamented that physicians and nurses did not encourage mothers to breastfeed in many hospitals, and infants were not put to the breast. What was worse, she commented, was some mothers did not even object to omitting breastfeeding counseling because they relied on nursing and medical staff as the experts in the matter.[81] However, not all nurses concurred with the mechanical nature of routine maternity care. Nurse supervisor Hazel Corbin noted in 1950 that some nurses were dissatisfied that mothers endured such treatment during the hospital stay because they viewed the birthing process as an intimate time in a family's life, filled with love and emotion.[82]

Bottle-Feeding Approved by Physicians

Near the mid-twentieth century, many public health nurses observed that more infants were leaving hospitals bottle-feeding; therefore, they asked pediatricians to give an update on the current trend of bottle-feeding. Many pediatricians endorsed bottle-feeding as an efficient and

safe method of infant nutrition. For example, Dr. William McKim Marriott, one of the most distinguished and influential pediatricians of the period, professed that no other food could surpass breast milk in quality. Yet he argued that there was nothing mysterious or sacred about human milk; "it is just food," and if a mother did not have sufficient milk then one should feed the infant artificially.[83] Dr. William Palmer Lucas of San Francisco believed that breast milk was uncontrollable: it was hard to find a mother who produced ideal milk, and that aside from its immunological benefits, bottle-feeding was more practical, and the best way of supplying all other nutritional requirements for infants. Lucas further contended that infant formula was precise, and best at determining caloric amounts for infant needs to feed the modern baby.[84] These views from the leading pediatricians suggested that bottle-feeding offered benefits to infants in cases where the mother was not able to breastfeed or chose artificial feeding because of work, or inability to supply adequate amounts of milk.

Nursing curricula also espoused bottle-feeding as a sufficient form of infant feeding.[85] By the middle of the century, medical and nursing disciplines viewed bottle-feeding as a viable form of infant feeding.[86] In fact, Marriott contended that the variability of human milk compared to cow's milk was a disadvantage to the breast-fed infant. With these views in mind, if mothers had any difficulty in breast-feeding, it was more likely that they would quickly be advised to bottle-feed rather than attempt to increase milk supply or correct breastfeeding problems.

Blacks' Transition to Bottle-Feeding

In North Carolina in 1946, 63 percent of mothers' breastfed, but by 1956, the rate had fallen to 25 percent.[87] This was a significant change in an infant feeding patterns, especially for a southern state where its rural population traditionally breastfed. As noted earlier in this chapter,

federal health programs were the largest outlets for wholesale access to infant and maternal education among rural mothers. Rural mothers gained knowledge of the importance of medical and nursing care to produce better health outcomes when they attended maternity and prenatal clinics, which resulted in an increase in scientific health services. In fact, the *North Carolina Health Bulletin* in 1946 documented that black rural mothers attended prenatal maternity clinic more frequently than rural whites did.[88]

As mothers gained knowledge of the importance of medical and nursing care to improve health outcomes, use of scientific health services increased. In a study conducted by demographers John Caldwell and Peter McDonald on the influence of maternal education and infant outcomes, the authors argued that maternal education introduced new ideas to poorly educated mothers that loosened traditional cultural ties.[89] It is very probable that low-income rural mothers in North Carolina received infant and maternal education at prenatal and maternity clinics that introduced new concepts about care and infant feeding that likely influenced and broadened their perspectives on scientific health care. Rural mothers became receptive to medical, nursing, and hospital care trends as economic and social conditions improved.

In rural areas in 1940, only 32.3 percent of infant births occurred in the hospital.[90] Among North Carolina's general population in 1944, approximately 52 percent of births took place in hospitals, while mothers that received EMIC support, approximately 85 percent delivered in hospitals.[91] North Carolina state health official William H. Richardson, who headed the division of preventive medicine, reported in 1945 that due to the EMIC program the state had benefited greatly; of the one in six infants born in the state, soldiers' wives in 1945 planned for a physician assisted hospital delivery.[92] Health officials in North Carolina reported to Children's Bureau leaders that the state had substantial hospital coverage for EMIC mothers. By the end of

1944, North Carolina's state health agency had approved approximately 110 hospitals and a few private physician-owned clinics as facilities for medical care. State officials reported hospital representation for every section of the state, with only two or three sections thinly represented, which assured Bureau officials that approximately 90 percent of the state population was covered in spite of physician shortages during the war.[93]

Historian Karen Kruse Thomas argued that despite a history of substandard hospitals, North Carolina boasted an increase in hospital use among rural black mothers due to the EMIC program.[94] North Carolina was home to three of the largest military bases in the country in the rural eastern black belt section, which due to its location, enhanced the potential of EMIC mothers spreading the word about good maternal care to other rural mothers in surrounding areas.[95]

Children's Bureau leader Martha Eliot, in her defense of the EMIC program, stated that the program not only provided beneficial direct services of excellent maternity and obstetric care to mothers, but also the program's benefits were far-reaching in that mothers shared with other mothers what constituted good maternity care.[96] It is reasonable to infer from personal reports and testimonies that the EMIC program expanded health knowledge, trainings, and revealed current trends for mothers during the period. There, within the hospital, medical and nursing personnel instructed mothers, modeled care, and demonstrated current knowledge in infant feeding trends. Mothers who did not object to bottle-feeding likely believed that what nurses modeled and taught them was best for infant feeding, or felt inadequate objecting to nursing and medical authorities, and thus submitted to hospital policies. For mothers to object to this form of infant feeding in the hospital setting would have confronted hospital policies.

The history of bottle-feeding for black and white mothers is very similar, but there are differences in timing, and differences in the factors that led mothers to bottle-feeding. Nurses and physicians taught both white and black mothers how to bottle-feed mid-century; the war, the EMIC program, hospital exposure, and postwar modern society, influenced both populations of mothers concerning infant care and feeding.

For white mothers, economic and social agency allowed them to participate in the social phenomenon of bottle-feeding much earlier than rural blacks. One reason white affluent mothers bottle-fed was that it allowed them to alleviate the need for wet nurses. Affluent mothers could balance their social calendars much more easily by bottle-feeding. With artificial feeding, they no longer had to worry about selecting the right wet nurse with high morals and impeccable health. No longer did they have to worry about mothers transmitting dreaded diseases to their infant or having to deal with cantankerous wet nurses.

Black mothers in the South likely viewed bottle-feeding as preferable for different reasons. With a long history of work outside the home in domestic and agricultural work, black rural mothers always needed to blend work and infant feeding. Mothers were able to balance the care of family with bottle-feeding and likely perceived this as a solution to providing nourishment for their infants and performing work responsibilities.[97] With the relative ease of preparation of evaporated milk, and its low-cost, mothers could control their infant feeding issues. Milk producers certainly targeted black mothers with advertisements using black mothers and infants to promote evaporated milk as the best food to feed infants artificially. Heavy advertising campaigns in black newspapers and magazines by companies such as Carnation Milk and Pet were influential in convincing mothers that evaporated milk was the best way to feed an infant and convenient also for preparing meals for the whole family.

Black mothers seemingly chose to bottle feed once educational and economic resources improved for them and they gained educational access to this new pattern of feeding.[98] By the 1950s, postwar prosperity increased the income of black families in the consumer-driven market.[99] Families had more disposable income to purchase modern technological advances. The public viewed radios, televisions, cars, and houses as signs of prosperity, and bottle-feeding fit with the modern family. Modern educated mothers viewed breast-feeding as primitive, confining, and symbolic of low social status.[100] The modern mother was scientific, knowledgeable, and sophisticated; thus, these mothers refused to be seen breastfeeding in public.[101] Black mothers likely wanted to identify with the dominant culture of affluence, and prosperity. When black mothers encountered mainstream healthcare, it is reasonable to believe that they followed the current trend of infant feeding just as other mothers did, for black bottle-feeding rate exceeded white mothers during mid-century.[102] There was no evidence to indicate that North Carolina mothers did anything different from other mothers who received EMIC benefits. The war also created new attitudes among blacks who were no longer willing to endure the injustices and inequities of America's racial codes of segregation; blacks began to speak out for civil rights, better jobs, housing, education, and better healthcare access.

Historian Edward Beardsley touted the EMIC program as one that turned southern women into hospital birth converts.[103] He argued that the program improved the quality of hospitals in the South, and that it was very beneficial in supplying a high quality of obstetric care. Civil Rights activist and physician Dr. Paul Cornely argued that the program helped more blacks than it did whites due to the large number of blacks enlisted in WWII. He stated that the program was "one of the best programs ever developed" for mothers and infants.[104]

In the changing society in which rural mothers lived, first the Social Security Act, then EMIC set in motion a high standard of health care for black mothers, and mothers were not willing to return to an inferior quality of care. Within the hospital setting and at medical clinics, nurses modeled to mothers the best that nursing services had to offer, what was current and best in infant feeding, and black mothers desired that for their infants. Exposure to maternal education and hospitals had indeed influenced mothers to set their sights on higher standards of healthcare that influenced their choice of infant feeding.

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Chapter 5—Conclusion: Science and Federal Health Programs Make Rural Mothers Modern

There are three fundamental arguments to help explain how black rural mothers transitioned to bottle-feeding during the mid-twentieth century in North Carolina: (1) federal programs that supported infant and maternal health (Sheppard-Towner, Social Security, and the Emergency Maternity Infancy Care Act. (2) the dissemination of scientific knowledge and expertise, and (3) a federal health program that provided a select group of mothers with free hospital birth access. The combination of these three factors over a course of approximately a half-century culminated in new ideas on pregnancy and maternal health, a new birth environment for rural black mothers, and a new pattern of infant feeding.

Maternal Child Health

Long before the twentieth century, science piqued man's interest to know more about the environment, and ways to control social problems to produce better health outcomes. Science in the late-nineteenth century had advanced rapidly, seeking improvement in medical and nursing education, advancing the germ theory, developing laboratories to identify bacterial specimens, and reaffirming the social and environmental contributions to poor health. By the early twentieth century, states in the United States began to reorganize their antiquated health boards to meet modern scientific standards. Popular belief in science as a way to solve the problems of the new century rose to a fervor.

One social problem for which health leaders turned to scientific inquiry was infant mortality. Infant mortality was excessive in industrialized cities, and health authorities attributed this to poverty, maternal ignorance and improper nutrition. To address the problem, progressive women leaders were determined to create a federal agency specifically for the welfare of children. After much persistence, they succeeded; Congress approved the formation of the Children's Bureau in 1912. The first goal of the new bureau was to use scientific research to study infant mortality, and the new agency began to gather data on all matters that pertained to children.

The federal government approved the Sheppard-Towner Act in 1921 for maternal education in rural areas, and that education included information about bottle-feeding for mothers who had difficulty breastfeeding. Although, this bill entitled all mothers to health education and services, the historical records do not reveal whether black mothers received prenatal education or bottle-feeding training. However, it is unlikely that this message reached rural blacks because they were marginalized by race and social standards.[1] These barriers would have impeded rural black mothers from participating in mainstream programs such as maternal education. In addition, nurses (the vast majority of whom were white) followed the social and racial norms of the South, and those norms included marginalization of blacks. Furthermore, there were not enough nurses, black or white, to teach this large population of rural mothers. Finally, black mothers in the South typically worked in domestic services or within agriculture where tenancy farming was prevalent.[2] To attend classes would have required employers to allow black workers time off to attend classes, which employers were probably not willing to do.

Data sources accessed for this study revealed that public health officials' primary health focus aimed at black women was to have nurses teach lay midwives the importance of using safer obstetric techniques during infant deliveries.[3] They perceived that midwife training and registration was the most efficient way to help black mothers since lay midwives attended the majority of black births in the state.[4] Successful completion of these classes would lead to their registration with the state. In addition, health leaders and physicians recognized that rural mothers usually did not have the resources for bottle-feeding supplies, nor did they consider them capable of mixing formula for bottle-feeding.[5]

My research suggests that physicians and nurses likely did not believe that black rural mothers were suitable candidates to implement bottle-feeding, in addition to their limited access to prenatal education during this period. Infant mortality rates in North Carolina for black infants during the Sheppard-Towner years also suggest that maternal education did not reach black mothers. In 1922, black infant mortality rate was 101 deaths per 1000 live births, but increased to 109 deaths in 1927.[6] During that same period, infant deaths for whites were 70 deaths per 1000 live births that reduced to 66 deaths by 1927. Maternal mortality rates followed this same pattern for black and white mothers. Black maternal mortality in North Carolina during1922 was 99.4 deaths per 10,000 live births and 98.9 deaths in 1927. For white mothers in 1922, 70.5 deaths per 10,000 live births occurred, which declined to 50.8 deaths per 10,000 live births in 1927. These rates indicate that black infant and maternal mortality did not have a significant decline during the Sheppard-Towner years, which suggests that black mothers probably

did not gain access to educational benefits that white mothers did to produce a reduction in mortality.

While the data for this study does not document whether North Carolina black mothers received prenatal classes that included bottle-feeding training during the Sheppard-Towner period, it does document that nurses advised midwives to teach mothers to set schedules for breastfeeding.[7] This training promoted breastfeeding, which likely was protective for black infants because health leaders and physicians had noted that infant mortality was more prevalent among bottle-fed than breast-fed infants. Furthermore, because many rural blacks lived in inferior housing in unsanitary conditions with outdoor privies that could contribute to poor water quality, the risk of infection and death might have been greater if mothers had bottle-fed.[8] Bottle-feeding required clean water, scrupulous washing and sterilization of bottles and nipples, and these would have been barriers to black mothers' feeding success in those challenging living conditions.

Although infant mortality remained high in the South among black infants, the maintenance of breastfeeding among black mothers very likely kept infant mortality rates lower than they could have been. What some may have interpreted as negligence or inequitable care on the part of providers by not sharing the full spectrum of the program with black mothers very likely saved thousands of black infants and children by prolonging the pattern of breastfeeding among blacks.

Hospitals, public health nurses, and maternal education were not the only ways that black mothers were influenced about infant feeding. Their peers and the media also influenced them. World War II created work opportunities for women during the 1940s, whereby black women seized the opportunity to work in factories at jobs other than

agricultural and domestic forms of work.[9] On these jobs, black mothers likely found opportunities to share similar life experiences, and discuss common problems specific to race, and their role as mother. It is very likely that mothers from nearby areas, and from other parts of the country, converged, shared, and asked each other about ways in which they managed work and infant feeding, whereby the topic of bottle-feeding likely emerged. During these conversations, new ideas, thoughts, concepts, and exchanges were being transmitted that probably influenced mothers' infant feeding pattern beyond previous customs specific to rural areas.[10]

In addition, milk companies targeted black mothers through advertisements, magazines, billboards, and newspapers to influence them to purchase canned milk products for infant feeding.[11] Black mothers perceived canned milk for infant feeding as convenient and economical because mothers could feed her infant, and prepare meals for the whole family. Because the milk was concentrated, with the addition of water, mothers could feed more people and prepare more bottles of milk, which was an added bonus for black families. Milk companies also placed recipes on cans, which were another incentive for mothers to choose this product because it resolved the question of what to prepare for the family meal, and the recipes were easy to prepare.

The Federal Government, Hospital Access and Bottle-feeding

When World War II started, the Emergency Maternity Infancy Care program was instituted to provide maternity and hospital care to soldiers' wives in the four lowest pay grades in the Armed Forces. Hospital care access where nurses taught mothers about bottle-feeding, set in motion a new pattern of infant feeding for rural black mothers,

spurring their transition to bottle-feeding. Hospital care exposed these mothers to the most current medical and nursing care, which enhanced their knowledge and access to current infant care and feeding.[12] By mid-twentieth century black mothers who had traditionally breastfed, transitioned to bottle-feeding. Research documents that during the mid-1950s, only 42 percent of black mothers breastfed for any duration compared to 73 percent in previous decades before the 1950s.[13] Considering their previous socio-economic status, they were able to make this transition only when they gained access to mainstream health experts, free medical and nursing care, and an educational environment to learn about bottle-feeding, which the EMIC program provided.

Limitations of Research

As with all historical research that would detail the daily aspects of black rural mothers during a time when they went unnoticed, my research had many limitations. The context of the period was such that both racial and gender bias were the norm; therefore, documentation related to the target population was not generally recorded or maintained. The male-dominant society typically devalued black women in society because of racial codes. They were not valued beyond the prescriptive roles assigned to them as agricultural and domestic workers. Black women worked long hours with low pay. In domestic service jobs, they could work as long as 18-hour days in service as cooks, cleaning, washing, and serving families without breaks or employers considerate of mothers' familial and personal needs.[14]

When black women left home to seek employment in defense factories during World War II, they confronted many obstacles. Employers at defense factories would

frequently give black women jobs that white women did not want, consisting of hard unskilled labor, and in some cases employers would deny jobs to blacks even if they were qualified for a position.[15] When the war was over and the men returned home, they accused women, both white and black, of taking their jobs, and subsequently employers displaced the women, sending them home to care for their families. For black women, this meant returning to former types of employment in agriculture or low-paying domestic service jobs.

When black women encountered mainstream health institutions, they were often devalued with inferior services. They could expect long waiting periods at health facilities, and would frequently receive demeaning treatment in substandard quarters designated for blacks only. Southern legislators often spent miniscule funds to address blacks' health care needs, which left them in need of quality health care.[16] Health and educational institutions were generally male dominated and authoritative, which seemingly did not see the value of educating, knowing, or understanding cultural and racial differences in ethnic groups apart from the dominant population. Mainstream society likely perceived black mothers as necessary primarily as service workers to meet the needs of the dominant population. Blacks generally lived marginalized in some ways as a means of survival to avoid white backlash in a Jim Crow society. This marginalization transferred across every area of life, in work, education, politics, and in health care. Blacks generally were not able to voice their needs and perspectives on basic issues of life without the risk of incurring negative consequences; therefore, a history about their experiences was lost during a period of invisibility.

It was difficult to find historical sources documenting feeding patterns for black mothers in archives and hospitals. Even within collections of historically black hospitals or hospitals where blacks were patients, feeding information was scarce or was buried in financial administrative reports. The literature at all-black Lincoln hospital in Durham did not have significant data specific to infant feeding, although there was evidence that Dr. William A. Cleland, the first black pediatrician at Lincoln, did teach mothers about bottle-feeding at well-baby clinics in 1938.

Archival collections pertaining to minorities often documented Civil Rights issues. Sources that should have shown promise as rich collections too often resulted in data that was not relevant to the topic or only cited one sentence or two. Research for this dissertation shed light on the paucity of archival sources available concerning black women and their infant feeding choices, supporting the premise that this target group was not recognized as historically relevant during the first half of the twentieth century.

The researcher acknowledges the potential for personal bias in this study. It is easy to be judgmental of mothers that bottle-feed in light of today's knowledge of the benefits of breastfeeding, for infants, mothers, and the public's health. Another bias is the temptation to believe that only low-income mothers bottle-fed infants. Although, the researcher's focus for this study was specific to indigent rural black mothers, the researcher acknowledges that some middle-class black mothers bottle-fed their infants before rural black mothers did.[17] Middle-class blacks (professional nurses, doctors, dentists, teachers and business owners) had greater economic resources, better access to education, housing and health care than indigent blacks did, whereby some mothers bottle-fed their infants. Historian Jacquelyn Litt argued that middle-class black mothers

during the early twentieth century would adopt medical standards such as bottle-feeding to advance their social class status, and to signify their identity with the modern dominant culture.[18] The researcher guarded against personal bias of mothers who chose bottle-feeding in view of all its benefits by maintaining a judge-free attitude that mothers choose their feeding plan to suit their needs because it suits their circumstances, their work life, and their financial needs. These factors influence decision-making regardless of the current known benefits of breastfeeding.

Future Study

A future study for this research can be informative to health care providers to analyze provider responses to black mothers as they gained more access to hospitals, maternal education, and different work experiences, after the 1950s. An analysis of how this influenced infant feeding could be helpful to health care providers' knowledge. Some new questions might be as follows: How did integrated hospitals facilitate infant feeding education, and rooming-in maternity units for black mothers? Were there differences in standards and communication methods among milk companies that distributed free products to black mothers during hospital stays?

Hospital Infant Feeding in the Twenty-First Century

Today's hospital policies on infant feeding promote breastfeeding more than any other form of infant feeding, turning the tables on previously popular bottle-feeding practices. In 1991, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) launched the Baby Friendly Hospital Initiative (BFHI) to

encourage and recognize hospitals and birthing centers that offered an optimal level of care for infant feeding and maternal infant bonding. [19] The BFHI consists of ten steps to initiate and promote breastfeeding. The primary steps of the initiative to initiate breastfeeding are skin-to-skin contact and 24-hour rooming-in policy. The global initiative support hospitals so they can supply mothers with current, evidenced-based practices, and knowledge for mothers to confidently initiate and sustain breastfeeding, or safely bottle-feed.[20] Researchers Wendy Brodribb, Sue Kruske and Yvette D. Miller contended that mothers exposed to at least four of the ten steps were more likely to initiate and continue breastfeeding at one and four months than mothers who experienced fewer of the ten steps.[21] The significant factor to their findings was mothers who delivered in a baby-friendly hospital were more likely to breastfeed, but more importantly that the practices those hospitals implemented exposed mothers to interventions that promoted breastfeeding. The implementation of skin-to-skin contact and a 24-hour rooming-in policy played a significant role in the likelihood of breastfeeding.

Unlike the mid-twentieth century, when more infants left hospitals using infant formula, Baby Friendly-designated hospitals promote a philosophy, an environment, and culture of breastfeeding. There are certain principles that these hospitals promote to accomplish their goal.[22] Baby Friendly hospitals do not distribute infant formula to mothers as a gift pack at discharge as in former decades when infant milk companies advertised heavily to mothers and offered free infant formula to hospitals. Nor do BFHI-designated hospitals give supplemental formula to healthy infants in hospitals unless a physician prescribes it and the mother gives consent. Some hospitals have written infant feeding plans that a mother must sign to give consent to the type of infant nutrition that

her infant will receive during the hospital stay. In addition to fostering breastfeeding during the hospital stay, baby-friendly hospitals foster support and referral for mothers to continue breastfeeding.[23]

Multiple maternal and child health organizations have linked together to support breastfeeding within hospitals and the community. In addition to the World Health Organization, the Centers for Disease Control, the American Academy of Pediatrics, the American Academy of Family Physicians, as well as Nursing and Women's Health organizations in the United States, have endorsed breastfeeding as providing the optimal pattern of infant nutrition, and they support mothers to safely bottle-feed infants only when breastfeeding is deemed unacceptable.

Nurses' Role

Today's nurses lead in providing women with infant feeding instructions, skills, and information. Without nurses' knowledge and expertise, hospitals would not be able to accomplish bedside maternal care, education, and training of families.[24] Nurses are the primary health providers that interact with mothers concerning infant feeding education, and they are required to be competent in breastfeeding knowledge so that mothers can acquire the information and skills to confidently breastfeed.[25] Unlike mid-century when hospitals did not adequately provide mothers with education that facilitated breastfeeding, nurses today encourage mothers to initiate skin-to-skin contact with infants immediately after birth to cultivate breastfeeding skills. They not only encourage and support mothers to breastfeed, the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) recommends that nurses who care for mothers and babies

should acquire the knowledge and competence to provide mothers with evidenced based knowledge throughout the maternity cycle—pre-conception, prenatal, and post-natal.[26] AWHONN believes that nurses should be willing to refer mothers to lactation specialists, (professionals specially trained to work with breast feeding mothers) if needed, to support mothers' decision- making process. AWOHNN's position is that all women have a right to culturally sensitive information about breastfeeding and that nurses should support the mother in whatever decision she makes about infant feeding, whether breast or bottle-feeding.

Mothers rely on nurses to give accurate information, advice, and to recommend appropriate resources so they can make an informed infant feeding choice. Although, breastfeeding is the gold standard, some mothers rely on bottle-feeding to suit their needs, schedules and work plans. Mothers need accurate information more than ever; a mother's choice affects her life and the life of her baby, and nurses know this. Nurses can encourage and support mothers about breastfeeding, and maternal and infant health organizations have recognized them as leaders in promoting the gold standard of infant feeding as well as supporting mothers who bottle-feed.

Conclusion

The author succeeded in constructing an explanation, via archival and secondary source research of how black rural mothers in North Carolina adopted bottle-feeding, and outlined the social, and cultural factors that influenced their transition to bottle-feeding in the mid-twentieth century.

Data concerning the social, economic and environmental context at the turn of century revealed that one of the major problems in urban society was infant mortality, which brought the issue of infant feeding to the attention of public health leaders. Progressive leaders' quest for scientific inquiry created a foundation of knowledge that health officials used to address infant mortality, and it included the need for federal involvement.

Children's Bureau studies on southern infant and maternal health led the federal government to recognize the need for better medical, nursing, and obstetric care for mothers during pregnancy and birth, within urban and the rural south. These data revealed that, racial, geographical isolation, and socio-economic conditions limited access to health care for rural black mothers.

In today's society, socio-economic conditions still influence infant mortality among black infants. Although, infant mortality rates have reduced significantly through better access to care, education and nutrition, black infants still have the highest mortality rate compared to whites. In North Carolina the infant mortality rate for black infants is 11.8 deaths per 1000 live births compared to 5.5 deaths per 1000 live births for whites.[27] Nationally the 2015 infant mortality rate is 6.0 deaths per 1000 live births. Just as access to health care, and impoverished living conditions were factors that influenced infant mortality a century ago, these factors still need considerable attention. In North Carolina, almost a fourth (24.4 percent) of children live in poverty.[28] Poverty affects families' abilities to meet the needs of children.[29] It is frequently difficult for impoverished families to access quality health care, healthy foods, and educational opportunities for

their children. Children born in these conditions are more likely to be of low-birth weight, and suffer sudden infant death syndrome.[30]

The American Academy of Pediatrics, calls for mothers to exclusively breastfeed infants the first 6 months, and continue to the 12 month period as complementary foods are introduced, which would help reduce health disparities and infant mortality.[31] Similar to breastfeeding campaigns a century ago to encourage breastfeeding, these measures are still important to achieving healthier infants today.

Notes

1. Frances Sage Bradley and Margaretta A. Williamson, *Rural Children in Selected Counties of North Carolina*, ed. U.S. Department of Labor Children's Bureau (Washington Government Printing Office 1918): 24-28.

2. Ibid.: 20.

3. Kate Brew Vaughn, "The Aims of the Bureau of Infant Hygiene to Be Accomplished through County Nurses," *North Carolina Health Bulletin* 34, no. 8 (August 1919).

4. Katharine F. Lenroot, "The Health-Education Program of the Children's Bureau, with Particular Reference to Negroes," *Journal of Negro Education* 6, no. 3 (1937).

5. Williams McKim Marriott, *Infant Nutrition: A Textbook of Infant Feeding for Students and Practitioners of Medicine* (St. Louis: C.V. Mosby Company, 1935): 153-54.

6. U.S. Department of Labor and Children's Bureau Publications, The Promotion of the Welfare and Hygiene of Maternity and Infancy Bureau Publication No. 194, (Washington, DC Children's Bureau, 1929), http://search.lib.virginia.edu/catalog/012480479. Journal/Magazine; Government Document; Online. 171, 75.

7. Vaughn, "The Aims of the Bureau of Infant Hygiene to Be Accomplished through County Nurses."

8. Bradley and Williamson, *Rural Children in Selected Counties of North Carolina*, 24-25.

9. Megan Taylor Shockley, "Working for Democracy: Working-Class African American Women, Citizenship, and Civil Rights in Detroit, 1940-1954," *Michigan HIstorical Review* 29, no. 2 (Fall 2003): 125-26.

10. Robert B. Cialdini and Melanie R. Trost, "Social Influence: Social Norms, Conformity, and Compliance," (1998), 153-54.
Social theorists and Psychologists, Robert B. Cialdini, and Melanie R. Trost, describes these exchanges as norm transmission. Norms must be communicated in order to have an effect on behavior.

11. New Journal and Guide and ProQuest HIstorical Newspapers, "Carnation Milk for Her Own Baby
Display Ad 17," *Norfolk Journal and Guide* 1959, 20.

12. Ibid.: 201.

13. Charles Hirschman and Hendershot, "Trends in Breast Feeding among American Mothers
," *Vital and health statistics. Series 23. Data from the national survey of family growth Department of Health, Education and Welfare*, no. 3 (1979): 2.

14. [Unknown], "We Are Literally Slaves,": An Early Twentieth-Century Black Nanny Sets the Record Straight," (January 1912), www.historymatters.gmu.edu/d/80.

15. Shockley, "Working for Democracy: Working-Class African American Women, Citizenship, and Civil Rights in Detroit, 1940-1954," 125-26.

16. Edward H. Beardsley, *A History of Neglect: Health Care for Blacks and Mill Workers in the Twentieth-Century South* (Knoxville: University of Tennessee Press, 1987): 136-37.

17. Jacquelyn S. Litt, "American Medicine and Divided Motherhood: Three Case Studies from 1930s and 1940s," *The Sociological Quarterly* 38, no. 2 (Spring 1997): 294.

18. Jacquelyn S. Litt, *Medicalized Motherhood: Perspectives from the Lives of African- American and Jewish Women*, (New Brunswick, New Jersey: Rutgers University Press, 2000). 126-28, 32.

19. Baby-Friendly Hospital Initiative, "The Ten Steps to Successful Breastfeeding," https://www.babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative/the-ten-steps.

20. Ibid.

21. Wendy Brodribb, Sue Kruske, and Yvette D. Miller, "Baby-Friendly Hospital Accreditation in Hospital Care Practices, and Breastfeeding," *Pediatrics* 131, no. 4 (2013): 688.

22. Initiative, "The Ten Steps to Successful Breastfeeding".

23. Ibid.

24. Obstetric and Neonatal Nurses: Position Statement Association of Women's Health, "Breastfeeding," *Journal of Obstetric, Gynecologic and Neonatal Nursing* 44 (2015): 146.

25. Ibid.

26. Ibid.

27. America's Health Rankings United Health Foundation, "2015 Annual Report North Carolina Infant Mortality," www.americahealthranking.org/explore/2015-annual-report/measure/IMR/state/nc.

28. Ibid.

29. Ibid.

30. Ibid.

31. Centers for Disease Control and Prevention, "Progress in Increasing Breastfeeding and Reducing Racial/Ethnic Differences - United States, 2000-2008 Births," *Morbidity and Mortality Weekly Report (MMWR)* 62, no. 5 (February 8, 2013).

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Appendix A

Federal Agencies for the Welfare of Mothers and Infants

Agency/Law	Date of Origin	Purpose
Children's Bureau	1912	First federal agency specific for the study of all matters pertaining to children
Sheppard-Towner Act	1921-1929	Federal grants to states for the provision of maternal health education for urban and rural mothers
Social Security Act	1935	Federal aid to states for the welfare of mothers and infants, to establish prenatal and maternity clinics in rural communities
EMIC Act	1943-1949	Federal aid to soldiers in the four lowest pay grades during WWII. This Act provided free maternal and hospital obstetric care for the wives of these enlisted soldiers and free infant care up to age one year
Hill-Burton Act	1946	Federal funds to states over a 5-year period for the construction of hospitals, nursing homes, and community health centers in areas of greatest need throughout the nation.

Source: U.S. Government Documents

Appendix B

Terminology

Term	Define or Describe
Black	Term used interchangeably for African American
Lay Midwife	Used interchangeably for "granny midwife" to describe African American untrained, unscientific midwives. Granny midwives were generally elderly black women, depicted as unintelligent, and unskilled. Historian Gertrude Frazer argued that the term "granny midwife," was associated with such terms as "Uncle" or "Aunt," which white southerners used to avoid addressing older African Americans as "Mr." or "Mrs."

Source: Gertrude J. Fraser, *African American Midwifery in the South: Dialogues of Birth, Race, and Memory* (Cambridge: Harvard University Press, 1998): 11.

Appendix C

Summer Offers Many Feeding Problems To Young Parents; Dr. Kittrell ...
KITTRELL, FLEMMIE
New Journal and Guide (1916-2003); Jun 26, 1937;
ProQuest Historical Newspapers: Norfolk Journal and Guide
pg. 9

Summer Offers Many Feeding Problems To Young Parents; Dr. Kittrell Answers Some

Bottle-Fed Baby Has More Health Risks Than One Fed From Breasts, Expert On Children Warns Mothers

By FLEMMIE P. KITTRELL

THE SUMMER months often prove to be very difficult for the average bottle-fed infant. Of course, parents should know that the bottle-fed baby has many healthy risks as compared to the breast-fed child. If it is at all possible, mothers should nurse their babies for at least six months.


DR. KITTRELL

Why is this so important? It is important for many reasons. Mother's milk is sterile. It contains those substances which work against disease germs. It comes to the baby in the right proportion and is ready without further preparation.

It contains more iron than other milks and is, as a rule, laxative in its effect. Babies who are breast-fed have approximately nine more chances to live than bottle-fed babies. To repeat again, if it is at all possible, mothers should make every effort to nurse their babies.

Occasionally a baby must be bottle-fed. When this is necessary, it is of the greatest importance to see to it that the milk comes from a dairy that has been inspected by the city health department. All milk given to children under three years of age should be boiled.

SHOULD BE BOILED

This statement applies to all milk that is purchased from the store or dairy as well as from other sources. The milk should be boiled from one to two minutes. Diarrhea, a disease so common in little children, is caused to a great extent by the use of raw milk. The simple matter of boiling can do much to overcome this difficulty.

For babies under nine months, the milk should be diluted, according to the directions of a competent nurse, nutritionist, or doctor. This dilution is necessary because cow milk contains almost twice as much protein as human milk. Protein makes for growth, but too rapid growth is not good for children.

Where there is no ice available, it is wise to use canned milk (Condensed sweetened milk should never—never be used for children). This milk is just as nutritious as the milk from the dairy. It is also recommended for mothers who travel during the summer where the milk is apt to be changed from time to time. The direction for the use of canned milk is found on the label.

DIGESTIVE TRACT FRAIL

Parents will want to remember that the digestive tract of the little child is very frail as compared to that of an adult. The digestive tract should be protected by giving the child food as free from harmful bacteria as possible.

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Display Ad 18 -- No Title
The Chicago Defender (National edition) (1921-1967); Sep 4, 1932;
ProQuest Historical Newspapers: Chicago Defender
pg. 7

FEARED BABY WOULDN'T LIVE

Then frantic mother tried new food— success amazing

"I was forced to put my baby on the bottle," writes Mrs. Richard Coughlin, 11410 Knowlton Ave., Cleveland, Ohio, "when he was but three weeks old. We tried different foods, all with the same result. He would no sooner get it down than it was up. One day my mother said, 'If I were you, I would not let that baby go down hill as fast as he has for the last month. I am afraid if you don't soon do something, it will be too late.'

"Well, I got a can of Eagle Brand and prepared a feeding. And sure enough, he kept every bit of it down. From then on, he gained so fast, we could hardly believe our eyes. Even when he took whooping cough, he did not lose an ounce of weight. I can't say enough for Eagle Brand."

* * *

Eagle Brand—next to mother's milk—is the easiest form of milk to digest. In the last 75 years, millions of babies have been raised on Eagle Brand. Thousands owe their lives to it. Try Eagle Brand. Follow simple directions on can. Write The Borden Company, Dept. ZA-21, 350 Madison Ave., New York, N. Y., for free booklet "Baby's Welfare."

EAGLE BRAND BUILDS STURDY BODIES, STRAIGHT BONES, SOUND TEETH

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Display Ad 17 -- No Title
New Journal and Guide (1916-2003); Nov 7, 1959;
ProQuest Historical Newspapers: Norfolk Journal and Guide
pg. 20

"We deliver as many as 125 babies a month," Mrs. Anderson says. "I know how important it is for tiny babies to have the most digestible form of milk for their formulas." More mothers feed Carnation to their babies than any other brand. This milk in the red-and-white can is the world's leader for infant feeding.

The Andersons with their son Michael at lunch. Dessert will be Mrs. Anderson's Carnation Custard. "Ordinary milk won't do for this custard," Mrs. Anderson explains. "It's never 'watery' with Carnation." Double-rich Carnation is the world's leading evaporated milk.

recipe:

"FAILURE-PROOF" CARNATION CUSTARD
(Makes 6-8 individual custards)

4 eggs
½ cup granulated sugar
½ teasoon salt
1 teaspoon vanilla
1 cup water
1⅔ cups (large can) undiluted CARNATION EVAPORATED MILK

Beat ingredients to mix well. Pour custard into 6-8 baking dishes; sprinkle with nutmeg. Put dishes in 2½" deep pan; pour water around the custard dishes.

Bake in moderate oven (350°F.) 40-45 minutes, or until knife inserted into custard comes out clean. Remove from water and cool. Add topping, if you desire.

Head nurse tells why she selected

CARNATION MILK FOR HER OWN BABY

Mrs. Ida Mae Anderson is head nurse and maternity supervisor at a leading hospital in Detroit. She has been a leader in advanced nursing methods for many years.

Mrs. Anderson and her husband have one son, Michael Lynn, a healthy, happy two-year-old.

"Michael was a bottle baby for nine months," Mrs. Anderson says. "His formula milk was Carnation, of course. When Michael changed to the cup we kept him on Carnation. We mix it with an equal amount of water, and it gives him all the food values of whole milk, with extra Vitamin D."

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TO HER STUDENTS at Morgan State College, Mrs. Winder-Gilkes points out that Carnation is the safest form of milk for baby's bottle.

College child-development teacher tells why doctors

RECOMMEND CARNATION FOR INFANT FEEDING

Professionally, Mrs. Winder-Gilkes is known as Dr. T. Vivian Winder. Her doctorate is in home economics. She teaches nutrition, marriage and family life, and child development at Morgan State College in Baltimore, Md. Dr. Winder is definite about Carnation's superior qualities for infant feeding as well as for cooking.

"Carnation is the most digestible and the most nourishing form of milk for infant formulas," Dr. Winder states. "It is used in more hospital formula rooms than all other brands combined.

"And this milk that is best for babies is best for cooking, too. That's not surprising when you realize Carnation is double-rich. "It is pure, whole milk, evaporated to remove more than half the water. Nothing else is taken out, nothing is added but Vitamin D. Every drop is simply twice as rich as ordinary milk. That's why Carnation looks like cream, pours like cream — and even whips!"

Dr. Winder says no other form of milk will do for "creamy" recipes, like the lump-free cream sauce below. "This cream sauce requires only half the usual butter and flour because Carnation itself is so rich. I use it for creamed chicken, tuna, chipped beef and casseroles."

MRS. WINDER-GILKES is shown here with her husband, Evan Gilkes, M.D., a gynecologist and obstetrician in Baltimore. The Gilkes are shown in one of their rare interludes of leisure—Saturday at lunch.

RECIPE:

CARNATION CREAM SAUCE

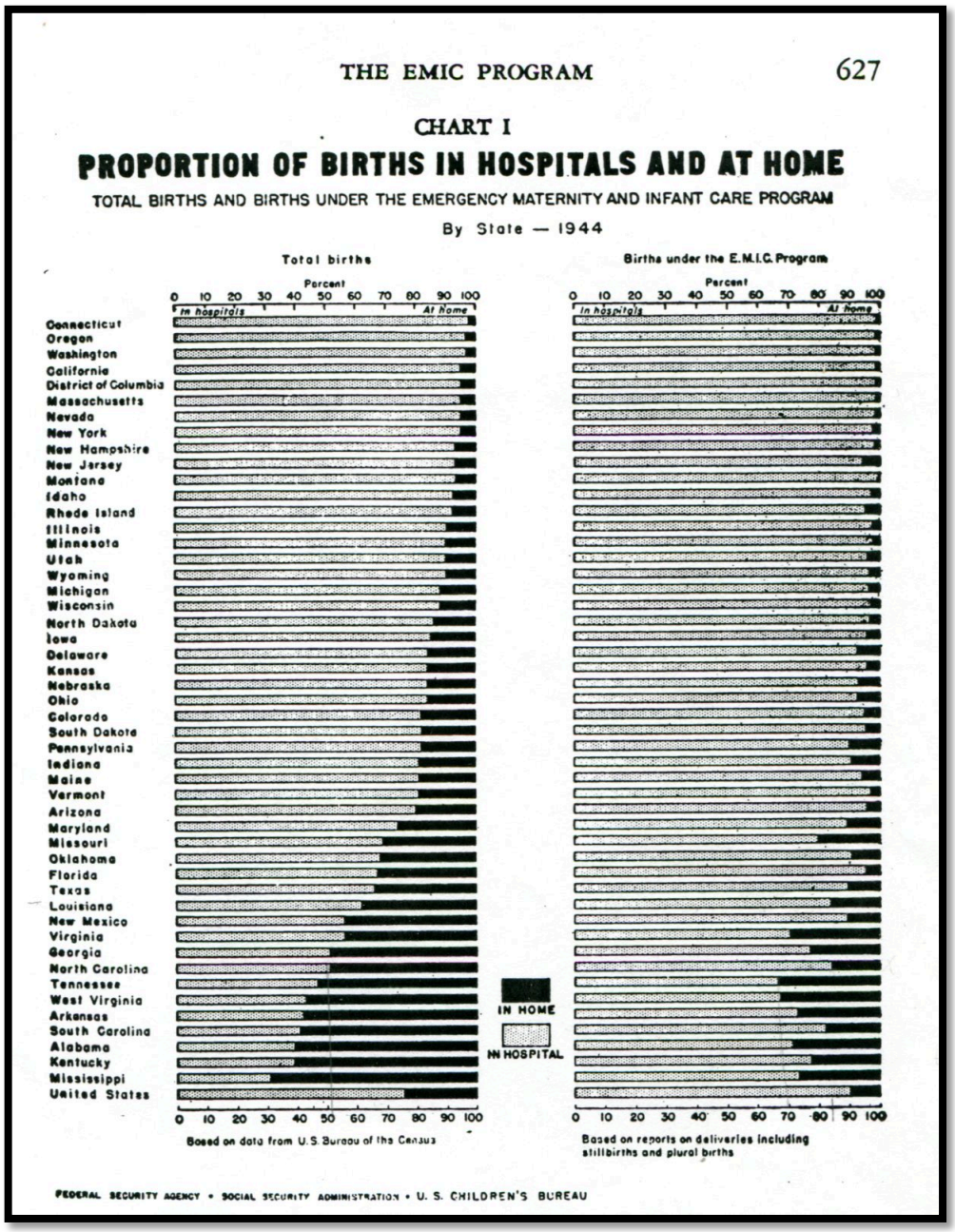
(makes about 2 cups)

- 2 tablespoons butter
- 2 tablespoons flour
- ¼ teaspoon salt
- ¼ teaspoon pepper
- 1⅔ cups (large can) undiluted CARNATION EVAPORATED MILK

Blend butter, flour, salt and pepper in saucepan

"FROM CONTENTED COWS"

Appendix D



Source: U.S. Children's Bureau
Figure D.1

Appendix D

INFANTS ON SPECIFIED FEEDING AT TIME OF DISCHARGE

	Number				Percent		
	Total	Breast only	Breast and bottle	Bottle only	Breast only	Breast and bottle	Bottle only
Whole country	39,171	14,931	10,565	13,675	38	27	35
Regions:							
Northeast	7,054	1,638	1,113	4,303	23	16	61
East and Central	14,682	5,332	4,454	4,896	36	30	34
Southeast	6,439	3,552	1,707	1,180	55	27	18
Southwest	2,505	1,173	890	442	47	35	18
Mountains and Plains	4,586	2,024	1,272	1,290	44	28	28
Pacific	3,905	1,212	1,129	1,564	31	29	40
County group:							
Metropolitan-adjacent	29,616	10,540	7,888	11,188	36	26	38
Isolated	9,555	4,391	2,677	2,487	46	28	26
Hospital size:							
25–99 beds	13,738	5,888	3,610	4,240	43	26	31
100–249	15,419	5,192	4,334	5,893	34	28	38
250 or more	10,014	3,851	2,621	3,542	39	26	35

Table 4.1. Infants on Specified Feeding at Time of Discharge. (Source: Katherine Bain, "Incidence of Breast Feeding in Hospitals in the United States")

NUMBER AND PERCENT OF INFANTS ON DIFFERENT TYPES OF FEEDING, BY AGE AT DISCHARGE

Age at discharge	Number				Percent		
	Total	Breast only	Breast and bottle	Bottle only	Breast only	Breast and bottle	Bottle only
All ages	39,171	14,931	10,565	13,675	38	27	35
Under 8 days	22,685	9,172	6,449	7,064	41	28	31
8 days and over	16,486	5,759	4,116	6,611	35	25	40

Table 4.2. Number & Percent of Infants on Different Types of Feeding at Discharge. (Source: Katherine Bain "The Incidence of Breast Feeding in Hospitals in the U.S.")

Appendix D

PER CENT OF INFANTS RECEIVING SPECIFIED FEEDING AT TIME OF DISCHARGE FROM HOSPITALS IN 1946 AND 1956 (BY GEOGRAPHIC REGIONS)

United States	*Breast Only*		*Breast and Bottle*		*Bottle Only*	
	*1946**	*1956†*	*1946**	*1956†*	*1946**	*1956†*
	38	*21*	*27*	*16*	*35*	*63*
Regions:						
Northeast	23	12	16	9	61	79
East and Central	36	20	30	15	34	65
Southeast	55	27	27	16	18	57
Southwest	47	27	35	23	18	50
Mountain and Plains	44	26	28	17	28	57
Pacific	31	25	29	19	40	56

* Bain's data.[1]

† Calculated average per cent based on yearly census of infants born in hospitals.[4]

Table 4.3. Percent of Infants Receiving Specified Feeding at Time of Discharge from Hospitals in 1946 and 1956 (By Geographic Regions)
Source: Katherine Bain "The Incidence of Breast Feeding in Hospitals in the U.S."

Appendix D

PER CENT OF INFANTS LEAVING THE HOSPITAL NURSERY WITH DIFFERENT TYPES OF FEEDING
(RANKED BY PER CENT "ARTIFICIAL ONLY" FOR 1956)

Region and State	*Breast Only*		*Breast and Artificial*		*Artificial Only*	
	1946	*1956**	*1946*	*1956**	*1946*	*1956**
Northeast	23	12	16	9	61	79
Massachusetts	21	12	12	6	67	82
Connecticut	20	8	10	11	70	81
Maine	26	12	7	8	67	80
New York	24	12	18	9	58	79
New Hampshire	27	18	1	7	72	75
Vermont	32	22	16	4	52	74
†Rhode Island	25	22	40	9	35	69
East and Central	36	20	30	15	34	65
New Jersey	37	16	21	7	42	77
Maryland	42	18	11	14	47	68
Pennsylvania	40	21	28	11	32	68
Wisconsin	28	20	30	12	42	68
†Delaware	24	15	27	20	49	65
Indiana	39	18	32	19	29	63
Ohio	27	20	42	17	31	63
Michigan	42	22	28	16	30	62
Illinois	35	20	30	19	35	61
District of Columbia	43	29	28	21	29	50
Mountain and Plains	44	26	28	17	28	57
Iowa	42	21	23	13	35	66
Missouri	48	25	23	13	29	62
Wyoming	54	32	27	9	19	59
Kansas	31	24	29	18	40	58
Montana	48	30	24	12	28	58
Nebraska	35	21	41	21	24	58
North Dakota	42	29	32	15	26	56
Minnesota	49	26	32	19	19	55
South Dakota	49	28	20	18	31	54
Colorado	**—	32	—	20	—	48
Utah	56	31	36	22	14	47
Idaho	28	33	47	27	25	40
Southeast	55	27	27	16	18	57
†Mississippi	57	21	29	5	14	74
Kentucky	38	16	46	12	16	72
†West Virginia	56	20	24	14	20	66
Virginia	37	20	36	14	27	66
†South Carolina	60	28	30	10	10	62
North Carolina	63	25	20	14	17	61
Florida	48	21	26	20	26	59
Arkansas	63	25	21	22	16	53
Louisiana	59	31	22	17	19	52

* Calculated average per cent based on yearly hospital census.[4]
† Reporting in the 1956 study did not exceed 50% of the hospitals.
** Inadequate reporting.

Table 4.4 "Percent of Infants on Different Types of Feeding by Region and State

Appendix D

Region and State	*Breast Only*		*Breast and Artificial*		*Artificial Only*	
	1946	*1956**	*1946*	*1956**	*1946*	*1956**
Georgia	64	36	13	17	23	47
†Alabama	60	34	29	21	11	45
†Tennessee	64	44	24	18	12	38
Pacific	31	25	29	19	40	56
Nevada	‡—	19	—	22	—	59
California	27	24	33	20	40	56
Washington	38	27	21	20	41	53
Oregon	42	34	22	15	36	51
Southwest	47	27	35	23	18	50
†Texas	43	22	39	22	18	56
Oklahoma	53	30	29	25	18	45
Arizona	70	44	17	18	13	38
New Mexico	36	29	46	33	18	38

‡ No report.

Table 4.4. Percent of Infants on Different Types of Feeding by Region and State 1946 and 1956. (Source: Herman Meyer "Breastfeeding in the U.S. Extent and Possible Trend.")