2019

Utilizing Food Safety Knowledge in Comprehensive Patient Care Among Harlem Hospital Physicians

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all
respects, and that any and all revisions required by
the review committee have been made.

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The Office of the Provost

Walden University
2019

Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Services

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November, 2019

Abstract

According to the World Health Organization (WHO), people throughout the world become sick every year from consuming contaminated foods, which impacts countries' socioeconomic development, straining their healthcare system, travel and tourism, and foreign trade markets. To help alleviate the impact foodborne illness (FBI) has on society, scholars suggest physicians incorporate food safety in their standard work practice. The purpose of this study was to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI, in addition to how physicians passed this food safety information onto the patient. A qualitative methodology using an interpretive description approach was used to determine 52 physicians' utilization of food safety accompanied by Slotnick four-stage theory of physician's learning as the study's theoretical foundation. The study found that Harlem Hospital medicine and ICU physicians were more knowledgeable in FBI than other hospital physicians, and even though physicians' definitions of FBI were different, all physicians' answers corresponded with the behaviors of clean, separate cook and chill. The research concludes Harlem Hospital physicians know how to diagnose and treat patients with FBI, and physicians acquired their knowledge of food safety through multiple resources. The study also found the physicians do not always include food safety in comprehensive patient care. However, all physicians agreed patients should be educated in food safety to prevent its reoccurrence. When physicians provide education at the bedside, this may help increase patient awareness in food safety, reducing hospital readmission rates, leading to a positive social change.

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Acknowledgments

I would like to thank my chair, Dr. Okenu, and committee member, Dr. Anderson, and Dr. Hijazi for their support during this process. By sharing their thoughts, ideas, and knowledge during this journey, they have provided me with the appropriate guidance and resources necessary to conduct my research and complete my dissertation. Now equipped with these new skills, I have the opportunity to pursue and further my career to the public as a problem solver and researcher in the healthcare and foodservice industry.

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Chapter 1: Introduction to the Study

Introduction and Background

The World Health Organization (WHO) stated over 600 million people throughout the world became sick every year from consuming contaminated food, which impacted countries' socioeconomic development, strained their healthcare system, and diminished their travel, tourism, and foreign trade markets (Hoffman et al., 2017; WHO, 2015, 2017). The WHO estimated that 1 out of every 10 people in the world became sick due to foodborne illness (FBI) (Hoffman et al., 2017; WHO, 2015; WHO, 2017). The Centers for Disease Control and Prevention (CDC) has estimated that 1 out of every 6 people in the United States became sick from FBI causing over 128,000 hospitalizations, and 3,000 deaths, costing taxpayers an estimated 15.6 billion dollars per year (CDC, 2016, 2018a; Gallagher, 2017). Byrd-Bredbenner et al. (2013) stated 32% of all Americans eat out, and health officials' primary focus was to ensure restaurants served and handled food safely, but health officials forget 26% of food consumed was prepared in private homes, and most Americans do not know how to keep food safe, or the signs and symptoms of FBI. As stated by Langiano, Ferrara, Lanni, Viscardi, and Abbatecola (2012), and Willis, Meah, Dickinson, and Short (2015), 30-40% of FBI outbreaks occurred in the home, but at times, cases were misconstrued with another ailment and went unreported because individuals did not know the signs and symptoms of FBI. Many individuals also confused FBI symptoms with the flu, common cold, or stomach virus and decided to ride out the symptoms instead of going to the emergency room or visiting their primary care physician (PCP). However, when some individuals had symptoms of

diarrhea, abdominal pain, gassiness, cramps, vomiting, fever, and so forth, they suspected it was FBI (Langiano et al., 2012; Willis et al., 2015). According to a gastroenterologist at Harlem Hospital, before treatment, the patient must be thoroughly examined by a physician or medical specialist before a diagnosis of FBI is confirmed.

My goal for this study was to determine if physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I examined how Harlem Hospital physicians acquired their knowledge of food safety and how they remembered the knowledge for future use. I determined whether Harlem Hospital physicians ever incorporated food safety knowledge in comprehensive patient care with a diagnosis of FBI, and if so, how they passed the information to the patient. Physicians need to learn food safety. According to (Slotnick, 1999, 2000, 2000a), if the physician believed the new knowledge was for the betterment of the patient, he or she would learn the new knowledge and apply it to his or her practice. My research findings should not only result in new information but also empower the physicians to make a positive change in their standard work practices.

The information in Chapter 1 includes the Purpose of the Study, Theoretical Foundation, Nature of the Study, Assumptions, Scope and Delamination, Limitation, and Significance of the Study. These sections will help me answer the research questions and address the problem statement.

Problem Statement

FBI may result from the ingestion of food products that contain physical, chemical, and biological contaminants. These contaminants may occur during the

production, transport, storage, and cooking of food products (Gallagher, 2017; Switaj, Winter, & Christensen, 2015; National Restaurant Association, 2017; WHO, 2017). As stated by Crim et al. (2014), Gallagher (2017), and USFDA (2017), although the Food Safety Modernization Act (FSMA) was signed into law, FBI continues to be an ongoing concern throughout the United States, affecting people with immunodeficiency syndrome, pregnant women, infants and the elderly (Jackson & Meah, 2017; USFDA, 2013). The CDC estimated that 1 out of every 6 people in the United States became sick from FBI causing over 128,000 hospitalizations, and 3,000 deaths per year costing taxpayers an estimated 15.6 billion dollars (CDC, 2016, 2018a; Gallagher, 2017). The private home setting is considered one of the places FBI occurs because individuals lack the proper food handling behaviors and resources needed to keep food safe (refrigerator, freezer, and cooking thermometers) and other food safety small wares (Crim et al., 2014; Gallagher, 2017; Langiano, 2012; Willis et al., 2015).

The goal of physicians is to diagnose and treat patients with an injury, ailment, or disease, but some providers lacked the knowledge to increase a patient's awareness of food safety (Byrd-Bredbenner et al., 2013; Gallagher, 2017; Ozay & Bedia, 2017). The discussion with patients who contracted FBI included diagnosis and treatment, but there was a gap in the literature about physicians incorporating food safety in comprehensive patient care, and my research attempts to fill the gap in the literature. Byrd-Bredbenner et al. (2013) also state there is a need for physicians to develop and incorporate food safety programs into their standard work practices. This approach in education may

result in safer food handling behaviors among patient, and a reduction of patients admitted into the study hospital with FBI creating a positive social change.

Purpose of the Study

The purpose of the study was to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. The physicians' knowledge and ability to utilize food safety was determined by conducting a qualitative methodology using an interpretive description approach, asking the physicians a series of questions about their knowledge and experience in food safety. Food safety should be another component included in comprehensive patient care and explained to the patient in conversation at the bedside (Muller-Juge et al., 2013). The approach in comprehensive patient care may help reduce rates of FBI into the study hospital creating a positive social change.

Research Questions

In my study, I created three research questions to help determine if physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. These research questions were:

Research Question 1 (RQ1): What type of food safety knowledge do Harlem Hospital physicians possess, and are they able to utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI?

Research Question 2 (RQ2): How do Harlem Hospital physicians acquire their knowledge of food safety, and how did they remember the knowledge for future use to help educate patients diagnosed with FBI?

Research Question 3 (3): Have Harlem Hospital physicians ever incorporated food safety knowledge in comprehensive patient care to treat and prevent FBI? If so, how did they utilize their knowledge of food safety to educate the patient?

Theoretical Framework

The theoretical foundation for my study was the four-stage theory of physician's self-directed learning episode or also known as, the Slotnick four-stage theory of physicians' learning. (Slotnick, 1999, 2000, 2000a). I used this theory to expound on the psyche of physicians and explain why they wanted to learn or teach themselves new methods within their medical profession (Koh & Dubrowski, 2016). It is important for physicians to learn food safety. As stated by Slotnick (1999, 2000, 2000a), physicians were motivated to learn new knowledge when confronted with a specific problem, or when there was a gap in their knowledge due to new techniques or technology. The motivation of acquiring new knowledge usually occurred when a patient asked a question and the physician needed to find the answer, or when the physician was confronted with a problem through observing the conditions in the environment (Slotnick, 1999, 2000, 2000a). Physicians went through different phases when they needed to learn new information. These stages of learning included: (a) deciding to take on a learning task, (b) acquiring the new skills and knowledge to resolve the problem, and (c) gaining experience using what was learned in other medical settings (Slotnick, 1999, 2000, 2000a).

While keeping the four-stage theory of physicians' self-directed learning episode in mind, the goal of my study was to determine if Harlem Hospital physicians utilized

food safety in comprehensive patient care with a diagnosis of FBI. I also wanted to determine how physicians acquired knowledge in food safety and then remembered the knowledge for future use. I also wanted to know if physicians educated a patient in the prevention of FBI, and if so, how they passed the food safety information to the patient. According to Joint Commission (TJC) standards (Relias, 2008), physicians must include education as part of the patient's care/treatment plan, and what was explained to the patient must be documented in the medical record. Educating patients about their illness was not only their right but helped prevent any future occurrences and also helped the patients better manage their ailments preventing readmission back into the hospital.

Nature of the Study

The nature of the study was a qualitative methodology using an interpretive description approach. I chose a qualitative methodology to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care. Hunt (2009) states the interpretive description approach was created for nursing researchers to investigate clinical issues. Over the years, medical researchers adapted the methodological approach to explore participants' experiences when a more traditional method was not suitable. By using the interpretive description approach, the researcher attempts to uncover the participants' subjective perspectives of a clinical phenomenon. Combining multiple realities to develop an understanding of the research problem may make it easier to find a solution (Hunt, 2009; Thorne, 2008; Thorne, Kirkham & O'Flynn-Magee, 2004). The combination of a qualitative methodology and interpretive description approach helped me determine if Harlem Hospital physicians utilized food

safety in comprehensive patient care. I obtained an understanding of physicians' knowledge in food safety by conducting six focus groups and nine interviews by asking the physicians' research questions approved by Biomedical Research Alliance of New York (BRANY), New York City Health + Hospitals (NYC H+H), and Walden University IRB. By transcribing and coding the audio recording to create themes, I was able to get feedback to answer the research questions and address the problem statement.

Definitions

Attendee: a physician who has completed his or her medical training and four-year rotation after medical school (Slotnick, 2001).

BRANY: Biomedical Research Alliance of New York is a national organization that supports sponsors and investigators involved in research in a wide variety of therapeutic areas, medical devices, biologic and diagnostic trials. BRANY offers IRB services providing efficient review processes and clinical trial solutions that helped maximize organizations revenue (BRANY, n.d.).

Culture Independent Diagnostic Test (CIDT): tests that can identify types of FBI causing bacterium within a short amount of time without having to culture or grow the bacteria in a laboratory (CDC, 2016a; Gallagher, 2017; Huang et al., 2016)

Cyracom Phone: a type of phone system health providers uses to communicate with patients who speak another language. A live registered interpreter listens to the patient and translates back to the health provider what he or she is saying (Juckett & Unger, 2014).

Empiric Treatment: knowledge of the cause or nature of the disorder based on the physician's experience rather than logic. The diagnosis of the patient, based on a sense of urgency before receiving official lab test (Switaj et al., 2015)

Foodborne Episode: a single FBI event (CDC, 2018).

Foodborne Outbreak: when two or more people become infected by consuming the same food or beverage (CDC, 2018).

Immunodeficiency Syndrome: when the patient's immune system is weak, inactive or not working to its highest capacity (Jackson & Meah, 2017; USFDA, 2013).

Intestinal mucosa: the inner lining of the small intestines. The area of the intestine that absorbs the nutrients into the body (Switaj et al., 2015).

Medical Resident: a practicing physician after he or she has completed the first-year internship after medical school (Koh & Dubrowski, 2016).

Patient Tracer: a method used by medical personnel and health surveyors to determine patients overall experience in a hospital or care facility from admission up until discharge. The process is to ensure the patient received the appropriate medical services and health providers were in compliance with all medical standards (The Joint Commission, 2018).

New York City Health + Hospital: the largest public health care system in the United States. NYC Health + Hospital provides essential inpatient, outpatient, and home-based services to more than 1 million New Yorkers in more than 70 locations across New York City's five boroughs (NYC Health + Hospital, 2019).

Teach-Back Method: when the patient is asked to verbally repeat what was said to ensure he or she comprehended what was told by the health provider (Batterham, Hawkins, Collins, Buchbinder, & Osborne, 2016).

Temperature Danger Zone: the temperature (41°F – 140°F) where bacteria are most active and cause FBI if consumed by a person (CDC, 2016, 2016a; National Restaurant Association, 2017).

Sentinel Event: an unexpected death or harm to the patient that requires an immediate investigation (The Joint Commission, 2017).

ServSafe: is an accredited food safety program established by the National Restaurant Association Educational Foundation. The Food Handlers and Food Protection Managers Program was a lecture-based course that covered the following food safety topics: (a) causes of FBI, (b) the storing and refrigeration of foods at the correct temperature, (c) cooking foods to the correct temperature, (d) proper food holding times, (e) cross-contamination prevention, and (f) proper hand washing, and other food-related topics (National Restaurant Association, 2017).

The Joint Commission (TJC): A regulatory agency whose responsibility is to ensure hospitals in the United States are following all State and Federal regulations (Relias, 2008).

Temi Audio Transcription Website: An inexpensive website that converts audio recordings into word document transcripts (Temi, 2019).

Assumptions

I made five assumptions in this study. My first assumption was all physicians would contribute to the conversations and answered all questions honestly. My second assumption was Harlem Hospital physicians had some knowledge of food safety and utilized the information in comprehensive care of patients diagnosed with FBI. My third assumption was Harlem Hospital physicians acquired their knowledge in food safety through their medical studies and education. My fourth assumption was the physicians had some knowledge of food safety and educated patients diagnosed with FBI before discharge from the hospital. Lastly, my fifth assumption was Harlem Hospital physicians believed their responses were valuable to the study. These five assumptions were essential to the study's context and pertinent to its success and meaningfulness.

Scope and Delimitations

In this study, I determined if physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI due to a gap in the literature about physicians' knowledge of food safety. There is a need for healthcare providers to develop food safety programs and incorporate food safety into their standard work practices (Byrd-Bredbenner et al., 2013). This approach in education could result in safer food handling behaviors of patients and their families, reducing rates of FBI into the study hospital creating a positive social change.

My study also had four boundaries. The first boundary was that the research occurred at one specific acute-care public hospital facility. I chose Harlem Hospital because its patient clientele consisted of minorities and low-income families. According

to the Harlem Hospital 2016 Community Needs Assessment (Dixon, 2016), the population of families who resided in Central/East Harlem, upper Manhattan, and the South Bronx are Black, African, Latino. The average income of these populations fell below the federal poverty index. Quinlan (2013) also stated these groups lacked knowledge in food safety and proper food handling because of their cultural and ethnical backgrounds, including their environment and socioeconomic status. The second boundary was interviewing physicians in various clinics throughout Harlem Hospital: Medicine (MU), Surgical Units (SU), Intensive Care Units (ICU), and the Emergency Department (ED). The third boundary involved focusing on physicians familiar with the treatment of patients diagnosed with these types of FBI: (a) norovirus, (b) nontyphoidal (c) Salmonella, (d) Clostridium perfringens, (e) Campylobacter, (f) Staphylococcus aureus, (g) Hepatitis A, (h) Listeriosis monocytogenes, (i) Shiga Toxin-producing Escherichia coli (E. coli), and (j) Cyclospora. The fourth boundary that could potentially influence the study's outcome was that I was also the director of food and nutrition services at the study hospital. Even though I conducted the focus groups and interviews, this did not tarnish the physicians' responses. The Department of Food and Nutrition falls under the hospital's Support Services Division, which is a non-clinical area. I have no direct affiliation or interactions with the medical staff, so there were no conflicts of interest. Lastly, any acute care hospital could easily tailor the research to meet their needs, especially in low-income areas.

Limitations

There were four limitations to the study. The first limitation was physicians feeling it necessary to provide answers they felt pertained to their knowledge of and how they educated patients on food safety. When speaking with physicians during the focus groups and interviews, I reminded them that their responses were kept confidential and that the study contained none of their personal information. The second limitation was interpreting physicians' responses and answers to specific questions during the focus group and interviews. As stated by Rubin and Rubin (2012), the researcher can understand participants responses by staying neutral and not agreeing or disagreeing to any of their personal opinions. During the focus group and interviews, I made sure not to interrupt the participants as they answered the research questions. The third limitation was the physician's not sharing their thoughts and ideas because they believed the study was inadequate or unnecessary. As stated by Slotnick (1999, 2000, 2000a), if the physician thought the purpose of learning new knowledge was for the betterment of the patient, he or she would assist and participate in the study. The fourth limitation is participants not incorporating food safety in comprehensive patient care because they no longer treat patients with FBI. Prior to their current medical occupation, the last time some physicians treated a patient with FBI was during their medical residency or clinical rotation while working in the medical-surgical units or the ED at the hospital.

Significance

I conducted a thorough literature review of physicians' knowledge of food safety. What I discovered in the literature was a need for physicians to incorporate and develop

food safety programs into their standard work practices. For example (a) the signs and symptoms of FBI, (b) the storing and refrigeration of foods at the correct temperature (c) cooking foods to the right temperature, and (d) proper food holding times, and other food-related topics. This approach in education may result in safer food handling behaviors and practices of patients and their families, reducing rates of FBI (Byrd-Bredbenner et al., 2013). However, there is a gap in the literature stating a physician's ability to utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI.

FBI affects people with immunodeficiency syndrome, pregnant women, infants, the elderly due to their weak immune system, and individuals who were sick and taking multiple medications (Jackson & Meah, 2017; USFDA, 2013). FBI also affected some classes of people more than others due to a lack of food safety and proper food handling knowledge, but also due to their cultural and ethnical backgrounds, including their environment and socioeconomic status (Barkley, Julian, Viveiros, Gosciminski & Brandy, 2016; Quinlan, 2013). According to the Harlem Hospital 2016 Community Needs Assessment (Dixon, 2016), the population of families who resided in Central/East Harlem, upper Manhattan, and the South Bronx were Black, African, and Latino. The average income of these populations fell below the federal poverty index. This was why Harlem Hospital was an excellent location to conduct the study.

My study also raised several implications of positive social change that could impact the Harlem community. One being patients relied on the medical advice given by their PCP, such as offering food safety education as part of comprehensive patient care

(Lateef, 2011; Hoffman & DelMar, 2015; Nadia, 2013; Pomey, Ghadiri, Karazivan, Fernandez, & Clavel, 2015). This type of education may help decrease rates of FBI of patients admitted into the study hospital, creating a positive social change.

Summary

In this study, I determined if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I asked the physicians how they acquired their knowledge of food safety and remembered it for future use. I also asked the physicians if they incorporated food safety in comprehensive patient care, and if so, how they passed the food safety information to the patient. In Chapter 2, I will discuss the peer-reviewed information while comparing and contrasting the articles retrieved from websites, and other scholarly material to find answers for the research study.

Chapter 2: Literature Review

Introduction

FBI may result from the ingestion of food products that have physical, chemical, and biological contaminants. These contaminants may occur during the production, transport, storage, and cooking of food products (Gallagher, 2017; Switaj et al., 2015; National Restaurant Association, 2017; WHO, 2017). As stated by Crim et al. (2014), Gallagher (2017), and USFDA (2017), although the Food Safety Modernization Act (FSMA) was signed into law, FBI continued to be an ongoing concern throughout the world, affecting people with immunodeficiency syndrome, pregnant women, infants and the elderly (Jackson & Meah, 2017; USFDA, 2013). The CDC stated an estimated 1 out of every 6 people in the U.S. become sick from food poisoning with 128,000 hospitalizations, and over 3,000 deaths per year costing taxpayers an estimated 15.6 billion dollars (CDC, 2016, 2018a; Gallagher, 2017).

The purpose of my study was to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I determined physicians' knowledge and ability to utilize food safety by conducting a qualitative methodology using an interpretive description approach. During this process, physicians I asked a series of questions about their knowledge and experience in food safety. Food safety should be another component included in comprehensive patient care with a diagnosis of FBI and explained to the patient in conversation at the bedside (Byrd-Bredbenner et al., 2013; Muller-Juge et al., 2013). The approach in comprehensive patient care may help reduce rates of FBI in the study hospital, creating a positive social

change. In Chapter 2, I discuss the literature on the topics of FBI, the "Be Food Safe Campaign," diagnosing and treating of FBI, types of FBI, Slotnick four-stage theory of physicians' learning, and so forth. I will also discuss literature on the physicians' motivation to solve problems, how physicians gained their medical knowledge, and how physicians communicated health information to patients.

Literature Search Strategy

I conducted the reference search for this study by using various databases and search engines for peer-review articles and information from 1981–2018. The most recent articles spoke about FBI and its diagnosis and treatment, while the oldest discussed the Slotnick four-stage theory of physicians' learning, and the qualitative research process, which was the framework for my study. The database and search engines I used included Google Scholar, MEDLINE, Nursing and Allied Health Source, ProQuest, PubMed, SAGE Full-TEXT Collection. Internet sources included information from the Centers of Disease Control & Prevention (CDC), U.S. Food and Drug Administration (USFDA), New York City Department of Health & Mental Hygiene (NYSDOH), and National Restaurant Association. The keywords I used while searching included: behaviors in food safety, Campylobacter, Consumer knowledge in food safety, cross-contamination, E. coli, foodborne illness, food handlers, food handling, food outbreak, food poisoning, food recall, Food Safety Campaign, foodborne outbreak, interpretive description approach, Listeriosis, norovirus, patient communication, patient education, physicians' learning, physicians' knowledge of food safety, Salmonella, ServSafe certification, Slotnick theory, and temperature danger zone. After completing the search,

over 100 articles and supporting documents provided proper evidence to support the study.

The literature review began with a brief overview of Harlem Hospital—which is the setting of the study—followed by a description of FBI and how it affected individuals and societies throughout the world. The main types of FBI discussed included (a) norovirus, nontyphoidal Salmonella, (b) Clostridium perfingens, (c) Campylobacter, (d) Staphylococcus aureus, (e) Hepatitis A, (f) Listeriosis monocytogenes, (g) E. coli, and (h) Cyclospora. This is followed by how to treat FBI, and the "Be Food Safe Campaign." The CDC (2018), USDA (2016), and USFDA (2017) states the "Be Food Safe Campaign" explains how to properly clean, separate, cook, and chill when handling foods. My literature review also discusses the diagnosis of FBI, its symptoms, and treatment. The theoretical material included the four-stage theory of physicians' self-directed learning episodes or also known as the Slotnick four-stage theory of physicians learning. The Slotnick four-stage theory of physicians' learning is supported by literature on physicians' motivation to solve a problem and learn new information (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). There was also a discussion on how physicians educated and communicated food safety to patients. The conclusion to Chapter 2 included a review of how key concepts and articles helped support the study, the theoretical foundation, and a discussion on how the research addressed the gap in the literature.

Harlem Hospital

Harlem Hospital is a 286-bed public, nonprofit, community teaching hospital. The hospital services include a wide range of medical, surgical, diagnostic and family support services to the residents of Central Harlem, East Harlem, West Harlem, Upper Manhattan, and the South Bronx, New York City areas (Dixon, 2016). Harlem Hospital is a member of the New York City Health + Hospitals and affiliated with Columbia University's College of Physicians and Surgeons. The hospital is also a designated Level I Trauma Center with an Area-Wide Burn Center, AIDS Designated Center, Designated Stroke Center, Level III Regional Prenatal Center, and Designated Sexual Assault Forensic Examiner Center of Excellence (Dixon, 2016). Harlem Hospital's mission statement is as prevalent today as it was when it first opened its doors in 1887: "To provide competent culturally-sensitive quality care to patients with dignity and compassion regardless of ethnicity, nationality, religion, or ability to pay, in a safe environment." The vision of the hospital was to be a patient-centered, acute care facility in support of its primary care initiatives (Dixon, 2016). According to the 2016 Harlem Hospital Community Needs Assessment, the Central and East areas of Harlem, and the South Bronx has some of the highest rates of resident with hypertension, cancer, asthma, HIV and AIDS, obesity, cardiovascular disease, and urban violence compared to the other five New York City boroughs (Dixon, 2016). Because of high acuity rates, Harlem Hospital received additional funding from the Federal government (Dixon, 2016). Harlem Hospital is also moving into the future with a $249 million five-year modernization project. The modernization project revolutionized health care in the

Harlem community and showed how health services provided to vulnerable populations (Dixon, 2016).

Foodborne Illness

Gallagher (2017), National Restaurant Association (2017), Switaj et al. (2015), WHO (2017) define FBI is the ingestion of contaminated food products caused by bacteria, parasites, chemicals, pathogens, and so forth. FBI may occur during the food production, transport, prepping, or cooking process. Crim et al. (2014), Gallagher (2017), Switaj et al. (2015), and USFDA (2017) stated although the FSMA was signed into law, FBI continues to be an ongoing concern and gets media attention throughout the world due to food recalls. Over the years FBI had become a challenge to physicians because of new strands of microorganisms and toxins that emerged and became resistant to antibiotic due to a change in the environment (Switaj et al., 2015). Out of 250 pathogens, these were the top nine that caused FBI: (a) norovirus, (b) nontyphoidal Salmonella, (c) Clostridium perfingens, (d) Campylobacter, (e) Staphylococcus aureus, (f) Hepatitis A, (g) Listeriosis monocytogenes, (h) E. coli, and (i) Cyclospora (Crim et al., 2014; Evans & Redmond, 2013; Kosa, Cates, Bradley, Chambers, & Godwin, 2015; Switaj et al., 2015; Vaerewijck, Baré, Lambrecht, Sabbe, & Houf, 2014). What all these FBIs' had in common were their signs, symptoms, and incubation periods. The symptoms of FBI included vomiting, diarrhea (with or without blood), fever, gassiness, abdominal pain, headache, dehydration, and so forth. These symptoms usually developed anywhere between 30-minutes to five days after the consumption of contaminated food items: including raw and undercooked meat, seafood, poultry, unpasteurized milk or

dairy products, processed foods, ready to eat deli meats, and fresh produce (CDC, 2017; Crim et al., 2014; Switaj et al., 2015). Out of the nine FBIs, I will discuss the following six in my document: (a) Campylobacter, (b) Escherichia coli (E. coli), (c) Salmonella, (d) Listeriosis, (e) Cyclospora (d), and (f) Hepatitis A.

Common Foodborne Illnesses

Campylobacter. *Campylobacter* is a type of bacteria that cause FBI in humans through the consumption of raw or undercooked meat/poultry, contaminated water, or unpasteurized milk. Campylobacter signs and symptoms are diarrhea (often bloody) or more than three loose stools in 24 hours, stomach cramps/pain, gassiness, and fever which usually appears 2 to 5 days after consuming the contaminated food (Awofisayo-Okuyelu et al., 2017; Bless, Suter, & Mausezahl-Feuz, 2014; CDC, 2017, 2018a; Crim et al., 2014; Switaj, et al., 2015; Vaerewijck et al., 2014).

E. coli. *E. coli* is a type of bacteria that caused FBI through the consumption of raw or undercooked ground beef, unpasteurized milk/juice, raw vegetables, or contaminated water. The signs and symptoms of E. coli are severe stomach cramps, bloody diarrhea, gassiness, vomiting, and fever. These symptoms typically occur 3 to 10 days after the consumption of contaminated food (CDC, 2017; Crim et al., 2014; Switaj et al., 2015; Vaerewijck et al., 2014). In some cases, E. coli could lead to life-threating complications, including kidney failure (CDC, 2018a, 2018b; Switaj et al., 2015; Vaerewijck et al., 2014).

Salmonella. *Salmonella* is gram-negative bacilli caused by FBI due to the consumption of undercooked or raw poultry, meats, eggs, unpasteurized cheese,

milk/juice, and raw vegetables (CDC 2017, 2018a, 2018b; Crim et al., 2014; Kosa, 2015; Shu-Kee et al., 2014; Switaj et al., 2015; Vaerewijck et al., 2014). The signs and symptoms of Salmonella include diarrhea, nausea, stomach cramps, headache, and vomiting. These symptoms usually occur 30 minutes to 6 hours after the consumption of the contaminated food product (CDC 2017, 2018a, 2018; Crim et al., 2014; Kosa, 2015; Shu-Kee et al., 2014; Switaj et al., 2015; Vaerewijck et al., 2014). Salmonella is also an FBI that can easily be misdiagnosed because individuals believe they have a common cold or flu (CDC 2017, 2018a, 2018b; Crim et al., 2014; Kosa, 2015; Shu-Kee et al., 2014; Switaj et al., 2015; Vaerewijck et al., 2014).

Listeriosis. *Listeriosis* is a bacterium that causes FBI through the consumption of unpasteurized milk/cheese, raw sprouts, melon, processed cold cuts/lunch meats, and smoked seafood. Listeriosis usually affects pregnant women and the elderly who experience symptoms of a headache, stiff neck, loss of balance, convulsions, fever, and muscle aches. These symptoms usually appear 1 to 4 weeks after the consumption of the contaminated food product (CDC, 2017, 2018b; Crim et al., 2014; Evans & Redmond, 2013; Switaj et al., 2015; USFDA, 2013).

Cyclospora. *Cyclospora* is a one-cell parasite that causes FBI through the consumption of contaminated water and is one the reasons why scientists linked this form of FBI to the consumption of raw fruits and vegetables. Cyclospora affects the small intestine and is usually associated with watery diarrhea, muscle aches, and weight loss (CDC, 2017; Switaj et al., 2015). If untreated, Cyclospora symptoms can last for up to 6 weeks causing long-term complications related to Guillain-Barré syndrome, where the

immune system attacks the nervous system, biliary cirrhosis disease, which affects liver function, and reactive arthritis or Reiter's syndrome (CDC, 2017; Switaj et al., 2015).

Hepatitis A. *Hepatitis A* is one of five hepatitis viruses that infect the liver. If not treated appropriately, it could lead to liver failure and death. Poor sanitation causes Hepatitis A, and it travels in feces which can be passed person to person through contaminated food and water (CDC, 2017; Switaj et al., 2015). The signs and symptoms of Hepatitis A consist of muscle aches, headache, loss of appetite, abdominal discomfort, fever, weakness, and fatigue, all of which usually do not appear until 28 days after a person is infected. Most people who contracted Hepatitis A develop *jaundice*. Jaundice is the yellowing of the skin, eyes, and mucous membranes, but their urine may also turn dark accompanied by clay-colored feces. Hepatitis A symptoms could last up to 2 months, but if not treated up to 8 months (CDC, 2017, 2018b; Switaj et al., 2015).

Treatment of Foodborne Illness

Henderson and Jackson (2014), and Switaj et al. (2015) stated the patients' history and physical examination were the bases for the diagnosis and treatment of FBI. The symptoms affiliated with FBI included vomiting, diarrhea (with or without blood), fever, abdominal pain, gassiness, headache, dehydration, and so forth. Switaj et al. (2015) stated FBI symptoms could easily be confused with the flu, common cold, or stomach virus. The patient's symptoms, such as diarrhea, abdominal pain, cramping, vomiting, gassiness, fever, and so forth, are automatically suspected to be FBI. People experiencing these symptoms may decide to ride them out instead of going to the emergency room or their PCP (Langiano et al., 2012; Switaj et al., 2015; WHO, 2017).

As stated by a gastroenterologist at Harlem Hospital, before treatment, the patient must be thoroughly examined by a physician or a specialist before confirming a diagnosis of FBI.

Symptoms/Diagnosis of Foodborne Illness

FBI may present itself in various forms running from clinically mild to very severe, which may lead to hospitalization. The patient may have several symptoms of FBI or just one, but a thorough examination was always suggested to prevent future complications (Switaj et al., 2015). Signs of FBI are never specific, but the physician must consider the patient's history, epidemiology, and other medical information to find the correct diagnosis and treatment (Switaj et al., 2015). The onset of symptoms determined the microorganisms or toxins causing the illness; for example, symptoms of vomiting and diarrhea within 24 hours could mean signs of Staphylococcus aureus or Bacillus cereus (Switaj et al., 2015). Crim et al. (2014) Switaj et al. (2015), and Vaerewijck et al. (2014) stated the development of diarrhea between 24 to 48 hours could indicate the ingestion of Campylobacter. FBI associated with fever may be Vibrio cholera, Shigella, or possibly Campylobacter. The body’s natural response to get rid of these toxic organisms was by flushing it out, causing the body to release an excessive amount of water. The reaction caused watery diarrhea, followed by severe dehydration and loss of electrolytes (Switaj et al., 2015). Bloody diarrhea accompanied by abdominal pain usually meant inflammatory damage to the intestinal mucosa and infection within the large intestine (Switaj et al., 2015).

Physical Examination & Ancillary Testing

When a patient presented with the signs, symptoms, and complaints associated with FBI, a physical examination must occur to monitor patient's vital signs. This includes, body's loss of electrolytes (sodium in the blood), orthostatic pulse (blood pressure/heart rate), changes in blood pressure, rate of respiration, skin turgor (elasticity), abdomen, mucous membrane, and the patient's mental status (Henderson & Jackson, 2014; Switaj, et al. 2015). The consistent observation of the patient was often the most appropriate option before diagnosis and treatment of FBI without ancillary testing (pathology/lab testing) which consisted of a stool culture (Henderson & Jackson, 2014; Switaj et al., 2015). The testing of a patients' stool provided a definite diagnosis, but in some FBI cases, stool cultures are less than 40% positive (Switaj et al., 2015). For patients who developed bloody diarrhea, a colonoscopy was recommended to ensure there was no damage to the patient intestinal mucosa (Switaj et al., 2015). Physicians may order a culture-independent diagnostics test (CIDT) when diagnosing a patient with FBI. The ordering a CIDT provided faster results, but over the years, there were some concerns about the accuracy of test, especially when the order includes a stool antigen to identify Campylobacter or another form of FBI (CDC, 2016a; Gallagher, 2017; Huang et al., 2016). At times, the CIDT results may produce a false positive leading to a skewed estimate and the interpreting data with incorrect information resulting in an excessive reordering of specimens. However, 60% of positive CIDT results are usually not followed up with a second order (CDC, 2016a; Gallagher, 2017; Huang et al., 2016). Excessive ordering makes it difficult for health officials to determine if the reason for the

test is due to insufficient results or an increase in the FBI. Additionally, unnecessary orders will result in increased cost, and misconstrued reported public health data which makes the job of measuring FBI in a particular area extremely difficult. (CDC, 2016a; Gallagher, 2017; Huang et al., 2016). In another study conducted in Guangdong, China, 8% of the clinical respondents did not know a stool specimen for culture was necessary to diagnose FBI accurately (Lu, 2012). However, once the physician received the appropriate training, there was a significant increase in their knowledge and ability to diagnose and treat patients with FBI (Huang et al., 2016).

Treatment of Foodborne Illness

To treat and reduce the symptoms of FBI, physicians may use anti-diarrheal medications; such as, such as loperamide, Imodium, Imotil, and bismuth subsalicylate (Pepto-Bismol) (Switaj et al., 2015). The patient should speak with their PCP before taking anti-diarrhea medication, or the infection may worsen (Switaj et al., 2015). Antiemetic medicines, such as chlorpromazine and metoclopramide are used to decrease symptoms of vomiting. Anti-diarrheal are used to prevent dehydration, and the need for hospitalization or intravenous fluids (Switaj et al., 2015). Anti-diarrheal medications are available over the counter (OTC), while the antiemetics are available through a prescription from the patient's PCP.

Empiric antibiotics were considered if the patient was febrile and had signs of an invasive illness in which symptoms persisted for more than a week or worsened (Switaj et al., 2015). The use of empiric antibiotics was necessary when the patient was suffering from Traveler's diarrhea (more than eight liquid stools per day) (Giddings, Stevens, &

Leung, 2017; Riddle et al., 2017). E. coli was the most common cause of Traveler's diarrhea and in severe cases was associated with foul-smelling stool, cramps, bloating, and weight-loss (Giddings et al., 2017; Riddle et al., 2017; Switaj et al., 2015). The most effective medications to consider when treating FBI were Ciprofloxacin and Azithromycin (Zithromax), but the dosage given to patients must be monitored carefully (Giddings et at., 2017; Riddle et al., 2017; Switaj et al., 2015). Studies have shown Probiotics may be the best alternative for children suffering from an FBI. Probiotics may help shorten their hospitalization to only 1–2 days compared to 3 or more days (Switaj et al., 2015).

Prevention is the first step in combatting FBI. Even though there was an abundance of information on the CDC and USFDA websites to increase public awareness, FBI has continued to occur in societies throughout the world (CDC, 2017; Crim et al., 2014; Hoffman et al., 2017; Switaj et al., 2015; WHO, 2017, 2018b). No matter the circumstances, consumers should follow food safety and proper food handling guidelines (Crim et al., 2014; Switaj et al., 2015; National Restaurant Association, 2017). To assist the public in appropriate FBI prevention guidelines, the CDC created the "Be Food Safe Campaign" (CDC, 2018; USDA, 2016; USFDA, 2017).

Be Food Safe Campaign

The USDA developed the "Be Food Safe Campaign" in partnership with the USFDA and CDC to equip consumers with the necessary resources and education to prevent FBI (CDC, 2018; USDA, 2016; USFDA, 2017). The USDA was responsible for working with commercial suppliers to ensure meats, poultry, and egg products were safe

and properly labeled for consumption (USDA, 2016). The USFDA (2017) was also responsible for regulating the manufacturing, marketing, and distribution of food products to the public. The CDC was a component of the United States Department of Health & Human Services (USDHHS) (USFDA, 2017), whose primary responsibility was to protect Americans from biological threats. Other organizations that partnered with the USDA, USFDA, and CDC to reinforce this health message were The National Association of County & City Health Officials (NACCHO), and the Foodborne Illness Burden Epidemiology Reference Group (FERG), which is a division of the WHO (NACCHO, 2013).

The purpose and design of the "Be Food Safe Campaign" were to offer the necessary tools and information to educate consumers and public health officials in the fight against FBI. Social marketing, risk communication theory, and behavioral changes in society were the bases for the food safety campaign, and were the main reasons why the campaign has influenced current and new policy development (CDC, 2018; USDA, 2016; USFDA, 2017a). The campaign message has helped assist consumers in handling food safely, but has also helped focus on the following food handling components: (a) clean, (b) separate, (c) cook, and (d) chill (CDC, 2018; USDA, 2016; USFDA, 2017a). If consumers followed these food safety behaviors and applied them to their daily lifestyle, he or she would help reduce the risk of FBI in their private home. This is one of the reasons why the campaign has influenced new policy development.

Clean. *Clean* is a method of removing dirt or contamination from food surfaces, kitchen equipment, people, and other areas to prevent cross-contamination or illness due

to harmful microorganisms (Byrd-Bredbenner et al., 2013; CDC, 2018; USDA, 2016; USFDA, 2017a). The main defenses against the pathogens and microorganisms that caused FBI were washing hands and maintaining one's hygiene (Ali, Verrill, & Zhang, 2014; Byrd-Bredbenner et al., 2013; Evan & Redmond, 2018; Gallagher, 2017; Jensen, Danyluk, Harris, & Shaffner, 2015). The American Dietetic Association (ADA) reported most consumers washed their hands with soap before preparing foods, but they were not washing their hands properly (Ali et al., 2014; Byrd-Bredbenner et al., 2013; Evans & Redmond, 2018; Jensen et al., 2015; Mazengia, Fisk, Liao, Huang, & Meschke, 2015). Byrd-Bredbenner et al. (2013) and Evan & Redmond (2013), also stated consumers who washed their hands after handling raw meat and poultry still had traces of Salmonella and Campylobacter bacteria on their hands. In a recent study conducted by Evans and Redmond (2018), out of 100 people observed, 90% failed to wash their hands after handling raw chicken. The most effective way of washing hands was using warm water and soap, then rubbing hands together while cleaning under nails and between fingers for at least 20 seconds. Lastly, rinsing the hands using warm water, and then drying them with a paper towel were recommended (Ali et al., 2014; Jensen et al., 2015; Restaurant Association, 2017).

The areas and items identified in the kitchen contaminated with FBI causing bacteria were: cutting boards, small wares, refrigerator handles, the kitchen sink, dish towels, and sponges (Evans & Redmond, 2018; Rossvoll et al., 2015; Rossi, Scapin, & Tondo, 2013; Wolde & Bacha, 2017). During meal preparation, these areas were not thoroughly cleaned to kill the bacteria, and there was no literature on how often

consumers washed their hands after touching these small wares (Evan & Redmond, 2018; Mazengia et al., 2015). A recent study by Taché and Carpenter (2014) stated there are several points in 15 households when swabbed that had traces of Enterobacteriaceae, Staphylococcus, Listeria, E-coli, Campylobacter, and other foodborne bacterium or pathogens: door handles, refrigerators, dishwashers, stove knobs, kitchen towels, and so forth. These results revealed consumers need more education in home hygiene practices. Evan and Redmond (2018), Rossi et al. (2013), Rossvoll et al. (2015), and Wolde and Bacha (2017) stated consumers did not wash or sanitize dish towel/sponges properly. Researchers found E. coli survived in dish towels/sponges for up to 48 hours. Byrd-Bredbenner et al. (2013), Evans and Redmond (2018) stated 92% of consumers who used dish towels/sponges. Of the 92%, 9% changed them daily, 44% weekly, and 47% when they no longer could be used.

Separate. The *separating* of food is necessary to prevent cross-contamination and the spread of the FBI. Byrd-Bredbenner et al. (2013), CDC (2018), USDA (2016), and USFDA (2017a), the goal of separating was to keep fresh meat, poultry, and seafood away from ready-to-eat foods, salads, and cooked meats. According to the National Restaurant Association (2017), to prevent the cross-contamination of foods, consumers are to separate food in the refrigerator according to the minimum temperature necessary to limit bacterial growth. Some examples of food separation included organizing the top shelf to contain ready-to-eat foods, followed by fruits and vegetables, and then fresh fish and seafood. The remaining shelves should contain raw beef and pork, ground meats, and fresh poultry on the bottom shelf. Byrd-Bredbenner et al. (2013), and Painter et al. (2013)

state consumers need a standardized process of storing food items correctly in the refrigerator. This is due to only three-quarters of consumers reported keeping fresh meats, poultry, and seafood separate from ready-to-eat foods in the refrigerator.

Cook. *Cook* means applying heat to food products to destroy harmful bacteria, and a thermometer is used to ensure the food products reached the correct temperature before consumption (Byrd-Bredbenner et al., 2013; CDC, 2016b, 2018; USDA, 2016; USFDA, 2017a; WHO, 2016). According to a Consumer Reports article, most people did not own or know how to calibrate a thermometer (Byrd-Bredbenner et al., 2013). Another Consumer Reports article states Asian-Americans do not know how to use a thermometer because they rarely cook large cuts of meat (Henley, Stein, & Quinlan 2012). Many consumers also expressed frustrations in remembering the appropriate cooking temperatures for meats, poultry, and seafood (Byrd-Bredbenner et al. 201; CDC. 2016b), and they also were not aware of the temperature danger zone (TDZ); 41°F–140°F, or the correct temperature to cook foods (CDC, 2016, 2016b; National Restaurant Association, 2017). It was imperative to use a thermometer to determine foods cooked to the correct temperature before consumption, for example, (a) fresh fish and seafood (145°F, 63°C), (b) raw beef and pork (145°F, 63°C), (c) ground meats (155°F, 68°C), and (d) fresh poultry (165°F, 74°C) (Byrd-Bredbenner et al., 2013; Gallagher 2017; National Restaurant Association, 2017). Consumers rarely used a thermometer to ensure foods heated to the correct temperature. In a study mentioned by Byrd-Bredbenner et al. (2013), Mazengia et al. (2015) chicken pieces visually assumed cooked still had traces of the Salmonella bacteria. Lastly, microwave ovens play a vital role in the kitchen when

cooking foods. Consumers reported they regularly followed cooking instructions and made certain foods were thoroughly heated before eaten. They also claimed to flip, stir, and allow foods to rest in between cooking times as instructed when using a microwave oven.

Chill. *Chill* refers to keeping food refrigerated at a low temperature to slow down the growth of harmful bacteria and to keep them from multiplying. Chilling foods in the refrigerator plays a significant role in preventing FBI, but consumers must continue to keep *clean* and *separate* in mind when using the refrigerator. Roccato, Uyttendaele, and Membre (2017) reported a study conducted in Ireland where half of the participants' refrigerators swabbed contained an abundance of FBI causing microorganisms: Salmonella, Listeriosis, E. coli, and so forth. Other studies conducted indicated refrigerators not set to the correct temperature (between 34–37°F), and at times were packed tightly with items causing poor circulation of cold air throughout the refrigerator unit (Byrd-Bredbenner et al., 2013; Masson, Delarue, & Bulumenthal, 2016; Ozay & Bedia, 2017). Only one-quarter of consumers reported periodically checking refrigerator temperatures, and the other quarters' refrigerator did not have a thermometer. However, 60% of consumers knew to keep food safe the internal temperature of the refrigerator was below 40°F (5°C) (Byrd-Bredbenner et al., 2013; Masson et al., 2016).

The most common misconception that causes FBI, was that cooked foods should be cooled at room temperature before placing it in the refrigerator (Byrd-Bredbenner et al., 2013). A study conducted reported that 79% of consumers leave perishable foods at room temperature for more than two-hours before placing them in the refrigerator (Byrd-

Bredbenner et al., 2013). According to the National Restaurant Association (2017), when ready to store foods after the cooking process, the temperature of the food should be rapidly reduced by placing them in the refrigerator slightly uncovered. Leaving the food container completely covered retains the heat causing the product to stay within the TDZ (41°F–140°F). Leaving the food within the TDZ caused the bacteria to multiply more rapidly. Once the food product was cooled down (below 40°F), it was completely covered to prevent any further contamination.

Even though the "Be Food Safe Campaign" was created for consumers to learn food safety and proper food handling (CDC, 2018; USDA, 2016; USFDA, 2017), physicians could use the same information to help educate patients in food safety. The four-stage theory of physicians' self-directed learning episode or the Slotnick Four-stage theory of physicians' learning helped me understand why physicians wanted to learn food safety (Slotnick, 1999, 2000, 2000a).

Theoretical Foundation

The theoretical base for my study was the four-stage theory of physicians' self-directed learning episode, or better known as, the Slotnick four-stage theory of physicians' learning. The Slotnick four-stage theory of physicians' learning was used in many studies to determine the proficiency and key strategies physicians used when acquiring new medical knowledge (Slotnick, 1999, 2000, 2000a). According to (Slotnick, 1999, 2000, 2000a), if the physicians believed the new knowledge was for the betterment of the patient, they would learn the new knowledge and apply it to their professional practice.

I chose Slotnick theory to determine if physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I also examined how Harlem Hospital physicians acquired their knowledge of food safety and how they remembered the knowledge for future use. I also wanted to determine if Harlem Hospital physicians incorporated food safety in comprehensive patient care, and if so, how they passed the food safety information to the patient. Peer-review literature was used to answer these questions and determine how physicians were motivated to learn new knowledge.

Slotnick (1999, 2000, 2000a) stated that physicians had self-efficiency and would learn new knowledge and pass it onto patients if they knew it was in their best interests. For the physician to become an effective food safety advocate, he or she needs knowledge in food safety, proper food handling, and the ability to communicate information onto patients. Physicians also need to use the necessary didactics to help patients understand the intended message (Nadia, 2013). Discussed in the upcoming paragraphs are studies on the topic of physicians' motivation for learning and teaching patients' new information.

Four-Stage Theory of Physicians' Self-Directed Learning Episodes

Slotnick (1999, 2000, 2000a) stated that a physician is motivated to learn new information when confronted with a specific problem or when there is a gap in knowledge due to new medical technology. The motivation usually occurred when a patient asked a question, or the physician was confronted with a problem while observing environmental conditions. As stated by Koh and Dubrowski (2016), and Slotnick (1999, 2000, 2000a) physicians go through different phases when they need to learn new

information. These stages of learning included: (a) Stage 0, scanning the problem, (b) Stage 1, evaluating the problem, (c) Stage 2, learning skills and knowledge, and (d) Stage 3, gaining experience. It was important to note that Slotnick revised the model and included "scanning" as Stage 0 and "evaluating" as Stage 1 (Koh & Dubrowski, 2016).

Stage 0: Scanning the problem. *Scanning the problem* stage of learning was when the physician assessed the environment to become familiar with the health and medical issues. Then he or she determined what new knowledge was required to address the problems (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). Physicians became inclined to learn new information after they received an evaluation, professional assessment, medical practice audit, participated in a patient tracer, or received feedback from a patient (Campbell, Parboosingh, & Slotnick, 1999). At times physicians acquired knowledge not needed until later on in their career (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). However, after a thorough evaluation, the physicians were trying to determine if additional knowledge was necessary (Slotnick & Shershneva, 2002). This stage of the Slotnick model was used to seek out the learning stages (Slotnick et al., 2002). Being able to define the problem helped physicians determine if the knowledge was relevant, or a need to find another solution (Campbell et al., 1999). Physicians may still lack the skills necessary to form the questions required to find answers to problems that arose during the assessment process (Slotnick, 1999, 2000, 2000a). According to (Slotnick, 1999, 2000, 2000a) to find the solution or solve a problem, physicians asked themselves a series of questions when determining whether or not to pursue the learning process (a) Was there a problem?; (b) Was this a problem for me?; (c) Was there a

possible solution to the problem?; and (d) Were resources available to learn what was required to solve the problem? Campbell et al. (1999) stated that phrasing the situation into the form of questions helped physicians determine whether the problem was worth pursuing. If a physician responded "yes" to these questions, he or she would often move to the next learning stage, but if they answered "no," there was a good chance he or she would not continue the exploration.

When pursuing a problem, the physicians may also ask themselves is the situation equivalent to their medical practice, level of expertise, and if they would find a solution (Slotnick, 2000 & 2000a). Physicians may feel motivated to pursue answers to problems depending on the learning resources available. As stated by (Slotnick, 1999, 2000, 2000a), during the decision-making stage, physicians asked themselves if resources were available for potential learning. The assertion indicated that access to resources was a factor that may influence the decision to engage in learning. Any resources involved in the decision process must be accessible, easy to understand, applicable to their work, and cost-effective (Slotnick, 2001). Physicians recognized that learning often leads to changes in their standard work, so they should consider how their decisions would affect their lifestyle (Slotnick, 1999, 2000, 2000a).

Stage 1: Evaluating the problem. *Evaluating the problem* stage of learning was when the physician acquired new knowledge by participating in specific learning activities focused on gaining the experience necessary to address the environmental issues (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). The physician conducted research, seeking the information necessary to address the health/medical concerns. The

knowledge was acquired by participating in activities outside of the workplace, such as reading and reflection, e-learning activities, small-group learning, conferences, and so forth. Due to time constraints, physicians may refer the patient to an outpatient physician more qualified or who may have a quicker turnaround time in addressing the patient's health or medical issues (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a).

Stage 2: Learning skills and knowledge. After the physician had acquired knowledge to address the health/medical concerns, he or she would then determine if the knowledge gained was the best course of action towards the solution. Scaffidi et al. (2017) conducted research which indicates physician who admitted using web-based resources, Google, Wikipedia, and so forth had superior short-term acquisition to research and references to medical information compared to physician who have not. Once the physician had learned and obtained the necessary experience needed to solve the problem or improved his or her knowledge, they would incorporate the knowledge into his or her standard work. The physician would then determine if what he or she learned was beneficial to their skill-set or medical practice (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a).

Stage 3: Gaining experience. The final step in the physicians' learning process occurred when the physician was comfortable with what he or she learned and developed a routine by incorporating the new knowledge into his or her standard work and professional medical practice (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). Once the physician used the knowledge and noticed the change had resolved the health

concern, he or she would continue to reassess the problem/situation seeking room for improvement (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a).

Physicians Educating Patients in Food Safety

According to studies conducted by Quick, Corda, and Byrd-Bredbenner (2013), and Rutsaert et al. (2013), consumers of all ages were interested in food safety when taught in a personable manner and easy to understand. Studies had shown that consumers took food safety seriously when there was a threat. These threats included, handling raw meat/poultry, seeing mold growing on food, noticing the food had a bad smell, and so forth (Mullan, Allom, Sainsbury, & Monds, 2015; Willis et al., 2015). If consumers mishandled food, it was usually due to bad habits, observing others exhibiting the same incorrect behaviors, or they never became ill from an FBI (Byrd-Bredbenner et al., 2013). Physicians could help break these bad habits by introducing the patients to standard routines or reminders they could build into their lifestyle when preparing/cooking foods (Byrd-Bredbenner et al., 2013; Gallagher, 2017). There are only a few studies about physician intervention about patients acquiring knowledge in food safety. However, there is still a need for food safety programs, so patients have the appropriate knowledge and behaviors to handle food safely (Byrd-Bredbenner et al., 2013; Quick et al., 2013; Mullan et al., 2013).

Reminding consumers about basic food safety practices (clean, separate, chill and cook) was key in preventing the reoccurrence of FBI, but there are other tactics that physicians could use to pass food safety knowledge onto the patient. (Byrd-Bredbenner et al., 2013; CDC, 2016; WHO, 2016). Even though consumers were familiar with basic

food safety practices, they still needed to be reminded about basic food safety standards. Some consumers were aware of harmful bacteria that caused FBI, but there were still gaps in their knowledge about food safety (Byrd-Bredbenner et al., 2013). Byrd-Bredbenner et al. (2013) stated consumers were less likely to follow basic food safety standards when cooking food for themselves. This was due to he or she lacking knowledge in food safety, he or she never contracted an FBI, or the belief he or she would contract an FBI in a restaurant before in their private home (Byrd-Bredbenner et al., 2013). However, studies showed that consumers followed proper food safety and food handling standards when cooking for their friends or family (Byrd-Bredbenner et al., 2013). In these situations, the physician could help the patient become more responsible and in control of their actions by educating patients most susceptible to FBI. One way the physician could explain to patients a way to avoid contracting FBI was by using a thermometer when cooking. Using a thermometer would ensure the food was cooked to the correct temperature (Byrd-Bredbenner et al., 2013). Some patients may feel embarrassed when using a thermometer, but physicians should encourage the behavior because it would help in preventing them from contracting FBI (Milton & Mullan, 2010). There are also social influences that strongly impact consumer, especially young adults, when trying to follow appropriate food safety procedures. These influences could lead to continuous bad habits that cause the consumer to contract FBI (Ovca, Mojca, and Raspor, 2014; Quick, Corda, Chamberlin, Schaffner, and Byrd-Brenner, 2013a; Quick et al.,2013b). However, directing the patient to social media groups (Facebook) could help improve their behavior and effectiveness in properly handling foods which could also

help build confidence and make them feel less vulnerable (Mullan et al., 2013; Ovca et al., 2014; Quick et al., 2013a; Quick et al., 2013b; Rutsaert et al., 2013).Changing patients' behaviors in basic food safety could be a difficult task. For example, many consumers believed they would not get sick if they left food out at room temperature for more than 2 hours or overnight (Willis et al., 2015). In the scenario, the food must be left under consistent low heat or placed in the refrigerator to chill (Grass, Gould, & Mohon, 2013; The National Restaurant Association, 2017). However, consumers would not change this habit if they believed there was no threat in contracting FBI (Byrd-Bredbenner et al., 2013). A tool that could be offered to help consumers practice good habits was a one-page kitchen assessment checklist (Byrd-Bredbenner, Abbot, & Schaffner, 2010). The checklist contained basic food safety and proper food handling tips. The consumer would take the checklist home and assess their kitchen to ensure processes were in place to prevent an FBI episode (Byrd-Bredbenner et al., 2010).

Lastly, physicians could also offer other food safety information to consumers, for example instructing consumers to read the preparation cooking directions printed on food packaging (Byrd-Bredbenner et al., 2013; Hoelzl et al., 2013). Byrd-Bredbenner et al. (2013), Hoelzl et al. (2013) speaks of a study conducted asking participants to follow a chicken salad recipe. The researcher gave safety instructions to patients not familiar with food safety. The package with safety instructions said, *"To prevent cross-contamination, avoid having the raw poultry touch any utensils used in the salad's preparation."* The researcher found that the participants who received the safety instructions made chicken salad that contained less harmful bacteria than the participants who did not receive safety

instructions. The study showed that when individuals read safety instructions on the packaging and followed the instructions, their food was kept safe. Another study showed that more than 57% of participants admitted not washing their hands before they prepared their meals or used a thermometer (Byrd-Bredbenner et al., 2013). However, when they placed the soap directly on the kitchen sink, it triggered them to wash their hands. Leaving the thermometer on the counter by the stove encouraged them to use it while cooking foods (Byrd-Bredbenner et al., 2013). These food safety tips may create a positive social change by decreasing FBI in the patient's private home and visits to the hospital.

Physicians' Communication with Patients

The primary focus of *provider-to-patient communication* was how physicians utilized different strategies to communicate with patients to achieve an understanding of their diagnosis and treatment, as well as to retain the amount of information given after discharge to prevent the reoccurrence of the illness or condition (Collins, 2015; Marcus, 2014; Nouri & Rudd, 2015; Silverman, Kurtz, & Draper, 2016; Wouda & van de Wiel, 2013). The topic of communicating food safety to patients was difficult for some physicians, but it was necessary for their overall treatment and the recovery (Collins, 2015; Nouri & Rudd, 2015; Silverman et al., 2016; Wouda & van de Wiel, 2013). The average American does not know how to keep food safe (Crim et al., 2014; Gallagher, 2017; Langiano, 2012; Willis et al., 2015), and patients readmitted for the same diagnosis, could financially impact the hospital (Hoffman & Tobenna, 2013; Joynt & Ashish, 2013; Scharff, 2015). As stated in my study, physicians needed to explain FBI to

patients to prevent readmission into the hospital with the same symptoms and diagnosis. It was also imperative that the physician talked about the impact FBI had on the patient and his or her family's health (Byrd-Bredbenner et al., 2013; Gallagher, 2017). The incorporation of basic food safety standards in a person's daily routine could lessen the chances of both the individuals and his or her family coming to the hospital due to some form of FBI (Byrd-Bredbenner et al., 2013; Gallagher, 2017).

Physicians used different techniques to communicate health education to patients. These techniques also included instruments when a patient was disabled or impaired. For example, an associate director at Harlem Hospital said, blind patients were offered an audio recorder to recite documents before signing. Patients with poor vision were offered a magnifying glass to help he or she read the medical documents. The associate director also stated they used a Video Relay Service (VRS) with an interpreter for deaf patients, and a Cyracom phone if the patient spoke a foreign language. Some other methods included a conversation with the patient at the bedside using different didactics: models, handouts, and so forth. In a study by Schwartzberg, Cowett, Van Geest, and Wolf (2007) physicians who participated were asked to complete a questionnaire emphasizing communication strategies used when educating patients. Out of 14 communication techniques, physicians used the top five (a) a simple conversation with the patient, (b) using hard-copy handouts, (c) saying the instruction slowly to the patient, (d) reading the instructions aloud to the patient, and (e) writing down the instructions and giving them to the patient for review. More than 70% of physicians stated they used at least four of the communication tools mentioned, and 40% of the physicians claimed they used the

"teach-back" method (Schwartzberg et al. 2007). This information was important for the study because physicians rarely incorporated these skills into their standard work practices (Schwartzberg et al., 2007). As stated by TJC, physicians must note the conversation with patients in the medical record, but there was no mention of the patient comprehending or using the information offered in their daily routine once discharged (Ali, Ferguson, Mitha, & Hanlon, 2014; Batter ham et al., 2016; Nouri & Rudd, 2015; Relias, 2008).

Methods of communication between physicians varied between professions. According to Paterick, Patel, Takik, and Chandrasekaran (2017), physicians must spend more time with their patients. This intervention for self-care and self-efficacy will help improve patient care and reduce certain comorbidities; for example, diabetes, hypertension, coronary heart disease, rheumatoid arthritis, and so forth. When physicians engage the patient and promote health literacy, the patient becomes their own healthcare advocate (Paterick et al., 2017). However, Collins (2015), and Silverman et al. (2016), state due to a high patient caseload, physicians rely on other medical disciplines, especially nurses, to assist in the treatment, education, and discharge of their patients. Additionally, physicians and nurses communicate differently to patients. At times, physicians used more technical terminology when speaking to patients making it difficult for them to understand their diagnosis and treatment. However, nurses tend to have more patience when explaining health topics, and they are more sincere and nurturing to patient needs.

In a leadership meeting at Harlem Hospital, it was stated, *"Physicians' responses to patients must be personable."* This type of behavior would develop trust with the patient and improvement towards their overall hospital experience. In another study, Cousins, Mast, Roter, and Hall (2012), and Nouri & Rudd (2015) asked physicians about communication competence of their patients. Physicians had an easier time communicating with patients more in tune with their health and more satisfied with their medical services than patients who were not. Physicians stated that they favored those patients who were more involved in their care than those patients who were less likely to argue and express dissatisfaction with their overall care (Cousins et al., 2012; Nouri & Rudd, 2015).

In a study conducted by Dejong and Gorrinto (2014), verbal communication was an effective way for physicians to discuss health topics, but patients preferred the conversation through an email or via text. The survey also included physicians who communicated with their patients via email and those who did not. The study showed physicians who used an email with their patients received a higher customer satisfaction score compared to those patients who did not. This was because patients were more comfortable asking those difficult questions, not in the presence of the physician, or the convenience of not making another doctor office visit (Dejong & Gorrinto, 2014). Physicians stated emails were convenient because they could spend more time with critically ill patients and respond to patients not sick through their email. Patients also said it was easier to speak with their PCP via electronic communication. Especially when

it was difficult to express their health concerns, or if the physician was of the opposite sex (Dejong & Gorrinto, 2014; Ladika, 2015).

Communication between the physician and patient were necessary to ensure the patient adhere to the prescribed health regimen. Poor communication between the provider and the patient had negative consequences that could lead to a patient safety threat, readmission, or a sentinel event (Ali et al., 2014; Collins, 2015; Batterham et al., 2016; Nouri & Rudd, 2015; Silverman et al., 2016). The goal of the physician was to ensure patients followed the prescribed health care regimen. However, it is the physician's responsibility to know and understand the culture, environment, and way of life of people in their community (Ali et al., 2014; Collins, 2015; Batterham et al., 2016; Nouri & Rudd, 2015; Silverman et al., 2016). Ali et al. (2014), Batterham et al. (2016), Nouri and Rudd (2015) all recommended that physicians take a communications class while in medical school. Physicians who had communication skills training could increase their ability in having a more meaningful conversation with their patients (Ali et al., 2014; Batterham et al., 2016; Gallagher, 2017; Nouri & Rudd, 2015).

The research discussed in this chapter helped influence the design of the research questions asked in my study's focus groups and interviews. The discussion of physicians' communication with patients helped me determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I also examined how physicians acquired their knowledge in food safety and how they remembered it for future use. I also determined whether physicians ever educated their patients in the prevention of an FBI and, how they passed the information to the patient.

Literature Review to the Study Methodology

The nature of the study was a qualitative methodology using an interpretive description approach. I chose a qualitative methodology to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care. Hunt (2009) states the interpretive description approach was created for nursing researchers to investigate clinical issues. Over the years, medical researchers adapted the methodological approach to explore participants' experiences when a more traditional method was not suitable. By using the interpretive description approach, the researcher attempts to uncover the participants' subjective perspectives of a clinical phenomenon. Combining multiple realities to develop an understanding of the research problem may make it easier to find a solution (Hunt, 2009; Thorne, 2008; Thorne et al., 2004). Obtaining a clear understanding of the problem and its resolution was achieved by seeking similarities of physicians' responses during the coding, theme development, and data analysis process after the focus groups and interviews. The combination of a qualitative methodology and interpretive description approach helped me determine if Harlem Hospital physicians utilized food safety in comprehensive patient care. As stated by Evans and Redmond (2013), even though there was minimal literature about physicians' knowledge of food safety, there are studies about consumer behaviors when handling food.

Determining the effectiveness of food safety and proper food handling among health professionals was mentioned in several studies using different methodologies. In a study conducted by Evans & Redmond (2013), they reviewed 165 food studies published

over the past 20 years. These studies discussed the attitude, knowledge, behavior, and practices of consumers throughout the world (United States, United Kingdom, The Netherlands, Ireland, Australia, and so forth), and their position on the prevention of Listeriosis and keeping food safe in the home (Evans & Redmond, 2013). Out of the 165 studies, 68 focused primarily on key food safety practices required to reduce the risk of Listeriosis in the home. Of the 68 studies conducted, 83% used a survey, 29% through observation, and 12% held a focus group (Evan & Redmond, 2013). In the category of participants that used surveys, the facilitator completed 47% of the surveys while interviewing the participants, and the participants completed the other 36% themselves (Evans & Redmond, 2013).

To determine patients' attitude, knowledge, behaviors in food safety, 12% of the studies showed data of *consumers' attitude* toward food safety practices. Out of the 12%, interviews determined 9% of the consumers' attitudes. Forty-four percent of the studies spoke on *consumers' knowledge* in food safety, and 25% of those studies conducted interviews as well. Lastly, 31% of the studies evaluated *consumer behaviors* in food safety, but none of these studies specifically focused on food safety behaviors, but rather the action. Some of these behaviors included, safe storage practices of food, failing to maintain the refrigerator at the appropriate temperature, not adhering to the "use by" date on food packaging labels, and so forth (Evans & Redmond, 2013). Even though there were discrepancies in the data, there was a lack of data combining methods compared to consumers' behaviors and perceptions. Researchers acquiring this type of information

may help them understand why individuals (teens, adults, elderly) do not follow basic food safety standards (Evans & Redmond, 2013).

Knowledge Gap

USFDA (2017), Langiano et al. (2012), and Byrd-Bredbenner et al. (2013) stated even though legislation was put in place to keep food safe for the public; physicians continue to treat patients with FBI. It was essential for the researcher to collect statistical data on increasing consumer awareness of food safety in their private home. Engaging consumers in food safety conversations was challenging because it was not a priority that carried much value in the consumer's daily life. However, this could change once the consumer became infected with an FBI, but in many cases, the bad habits stayed the same (Byrd-Bredbenner et al., 2010; Quinlan, 2013). Due to high rates of FBI in the country, there was a need for physicians to developed food safety programs in their medical practice (Byrd-Bredbenner et al., 2013).

My study could be used to bring awareness and knowledge to physicians on the lack of food safety practices in the consumer's private home (Evans & Redmond, 2013). This information could also help physicians gain a better understanding of alternative methods necessary to prevent and reduce future episodes/outbreaks of FBI. By increasing the physicians' knowledge, it may result in better health outcomes, food safety programs, and policy development to help educate patients and eliminate poor food safety practices.

Rationale for the Research

The rationale for my research was no literature on the subject to determine if physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. Carol Byrd-Bredbenner and H.B. Slotnick were both the foundation and support for this study. Byrd-Bredbenner et al. (2013) state that physicians should educate patients in food safety when diagnosed with FBI. Physicians should also develop food safety programs to help prevent and reduce future episodes or outbreaks of FBI. Slotnick (1999, 2000, 2000a) stated if the physician believed the purpose of the new knowledge was for the betterment of the patient, they would learn the new information and apply it to their professional practice. Six focus groups and nine interviews were conducted with 52 physicians to determine if they utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. After analyzing the focus group and interview data, answers to the study's research questions emerged. Analyzing the data should help assist physicians in developing interventions to promote food safety and proper food handling behaviors among patients with FBI. The approach in comprehensive patient care may help reduce rates of FBI in the study hospital creating a positive social change.

Summary and Conclusions

After reviewing the most current peer-review literature, there was little to no information on the topic of a physician's ability to utilize food safety in comprehensive patient care with a diagnosis of FBI. The current body of literature included general information on the types of FBI, how to treat FBI, food safety practices, and the prevention of FBI. The literature also addressed how physicians learned medical information, and when necessary, educated patients on their diagnosis and treatment of

FBI. As stated by Byrd-Bredbenner et al. (2013), physicians should educate patients in food safety to prevent future FBI episodes or outbreaks, and my research aimed to address the gaps in the literature. The methodology for the study was a qualitative analysis using an interpretive description approach, which was discussed further in Chapter 3. The interpretive description approach asks physicians a series of questions about their knowledge and experience in food safety. This approach may help decrease patients admitted into the study hospital with an FBI creating a positive social change.

Chapter 3: Research Method

Introduction

Due to high rates of FBI, and the related healthcare costs FBI placed on consumer and society, there was a need for physicians to incorporate food safety knowledge in comprehensive patient care with a diagnosis of FBI (Byrd-Bredbenner et al., 2013). The purpose of my study was to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. The physicians' ability to utilize food safety knowledge was determined by conducting a qualitative methodology using an interpretive description approach, asking physicians a series of questions about their knowledge and experience in food safety. Food safety should be another component included in comprehensive patient care and explained to the patient in conversation at the bedside (Muller-Juge et al., 2013). The interpretive description approach may help reduce rates of FBI in the study creating a positive social change. In this chapter, I explain the qualitative research design and the rationale behind the study. I also discuss the chosen methodology, setting, sample size, participant recruitment, data collection, the development of the research instrument, and trustworthiness in my study. The chapter concludes with the dissemination of my research findings.

Research Design and Rationale

The physicians answered semistructured research questions during the focus group and interviews. These research questions helped determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI:

RQ1: What type of food safety knowledge do Harlem Hospital physicians possess, and are they able to utilize food safety knowledge in comprehensive patient care when there is a diagnosis of FBI?

RQ2: How do Harlem Hospital physicians acquire their knowledge of food safety, and how did they remember the knowledge for future use to help educate patients diagnosed with FBI?

RQ3: Have Harlem Hospital physicians ever incorporated food safety knowledge in comprehensive patient care to treat and prevent FBI? If so, how did they utilize their knowledge of food safety to educate the patient?

To determine the thought process of Harlem Hospital physicians, I used an interpretive description approach. An interpretive description approach grounded the research and determined the knowledge and experiences of participants to help answer the research questions. This included what experiences participants had in common as it related to the study. As stated by Hunt, (2009); Thorne (2008); and Thorne et al. (2004) in qualitative research an interpretive description approach explored participants' experiences when a traditional method was not suitable. I achieved this through conversations because all participants had multiple realities, opinions, and points of view on health topics due to their educational background, curriculum, gender, and so forth (Hunt, 2009; Thorne, 2008; Thorne et al., 2004). Some physicians gave great feedback about their knowledge of food safety while other physicians did not. Physicians' responses differed during the focus groups and interviews because of their education, previous work experiences (working in a restaurant or the foodservice industry), learning

how to cook by their parents or another family member, watching the Food Network, having a ServSafe or Food Protection certification, and so forth. In my study, I believed including food safety in comprehensive patient care would prevent the reoccurrence of FBI. But I first needed to find out if physicians utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI.

The rationale for the research is that no literature is available to determine if physicians utilized food safety in comprehensive patient care when there was a diagnosis of FBI. Peer-review literature from the authors Carol Byrd-Bredbenner, and H.B. Slotnick provided the foundation to help support my study. To help prevent episodes or outbreaks of FBI, Byrd-Bredbenner et al. (2013) stated physicians should educate patients about food safety and develop programs in proper food handling. Slotnick (1999, 2000, 2000a) said if the physicians believed the purpose of the new knowledge was for the betterment of the patient, they would learn this new information and apply it to their professional practice. To understand physicians' rational, I created a study and conducted six focus groups and nine interviews with 52 physicians. As stated by Thorne (2008), researchers who utilized an interpretive description approach used 5–30 participants' as a reasonable sample size before the saturation of participants' answers. Burmeister and Aitken (2012), Hennink, Kaiser, and Marconi (2016), and Maltured, Siersma, and Guassora (2015) stated smaller sample sizes was easier to manage opposed to larger samples, which could take more time to analyze. My hope after examining the focus group and interview data was to assist physicians in developing interventions to promote food safety and proper food handling. My study would also add to literature

involving physicians' knowledge of food safety and their ability to utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI.

Role of the Researcher

As the researcher for the study, I am also the Director of Food and Nutrition Services at the study hospital and oversees the department's administrative, kitchen operation, and clinical nutrition assessment of patients. There were no conflicts of interest because the Department of Food & Nutrition Services is a non-clinical area, and has no direct affiliation with the hospital physicians. As the researcher, I bring to the study a combination of healthcare, food safety, and proper food handling knowledge acquired through my educational background and professional experiences. I have my associate's degree in culinary arts, a bachelor's degree in food service management, and a master's degree in both managerial technology and public administration with a minor in healthcare. I also have both my ServSafe and New York City Food Protection certifications, which make me qualified to conduct this type of research study. As the Director of Foodservices, I also understand how the healthcare delivery system works, and the roles and responsibilities of the physicians, attendees, medical practitioners, medical residents, and physician assistants in the hospital.

My primary role while conducting the study was to add some additional information to the literature that could help decrease FBI episodes of patients admitted to the study hospital. This may be possible by conducting semistructured focus groups and interviews with Harlem Hospital physicians to determine if they utilized food safety knowledge in comprehensive patient care. All Harlem Hospital physicians consisted of

attendees, medical practitioners, medical residents, and physician assistants who work in various departments throughout Harlem Hospital.

Additionally, there was no potential bias that could influence the study's outcome. However, to prevent any claims of bias I used the following tactics: (a) random physicians from the selected population; (b) physicians were asked the same questions to ensure correlations with the study's purpose; (c) the study results were not manipulated and were recorded precisely as stated by the physicians; (d) I did not ask any leading questions, and (e) all physician responses were respected and recorded whether or not I agreed with the response. Also, during the focus groups and interviews, I asked open-ended questions. As stated by Rubin and Rubin (2012), when asking participants open-ended questions, you will get more detailed responses from the participant other than yes or no answers. Babbie (2017), Ravitch and Carl (2016) stated the researcher is to ensure their thoughts or opinions do not interfere or influence the participant. To prevent this from occurring, I consistently reviewed my notes and transcripts before converting them into codes.

According to Rudestam and Newton (2015), it is the scholar-practitioner's responsibility to make sure they are meeting all ethical standards established by the institution's IRB process. The IRB authorization: (a) sets the validity of research; (b) sets the competency of the researcher; (c) sets the beneficence of the study; (d) established informed consent, and (e) safeguard the physicians. The only ethical concern in my study was receiving the appropriate consent from physicians. To ensure the physicians received proper consent, I asked each physician to complete the consent form before the focus

groups and interviews. The consent form made sure all statements and conversations held were kept confidential and only used for my study. To prevent any ethical concerns from arising, including my integrity, I consistently maintained the validity and accuracy of the data as discovered, even if the outcome was not what I expected. Burkholder, Cox, and Crawford (2016) stated when presenting the data, avoid careless errors, sloppiness, and critically examine all research information. If not, the researcher may lose the trust of peers and other scholar-practitioners. To resolve these dilemmas, I ensured the research, data collection, literature review, and so forth were well-documented, legible, and supported by other proven materials, such as peer-reviews and journal literature (Burkholder et al., 2016).

Methodology

The nature of the study was a qualitative methodology using an interpretive description approach. I chose the qualitative methodology to determine if physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. Hunt (2009) states the interpretive description approach was created for nursing researchers to investigate clinical issues. Over the years, medical researchers adapted the methodological approach to explore participants' experiences when a more traditional method was not suitable. By using the interpretive description approach, the researcher attempts to uncover the participants' subjective perspectives of a clinical phenomenon. Combining multiple realities to develop an understanding of the research problem may make it easier to find a solution (Hunt, 2009; Thorne, 2008; Thorne et al., 2004). Obtaining a clear understanding of the problem and its solution was achieved by seeking

similarities of the themes and patterns collected during the semistructured focus group and interview process. In my study, the combination of a qualitative methodology and interpretive description approach helped me determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. As stated by Evans and Redmond (2013), even though there was minimal literature about physicians' knowledge of food safety, there are studies about consumer behaviors when handling food. However, Byrd-Bredbenner et al. (2013) continues to advocate physicians must develop food safety programs and incorporate food safety in their standard work practices.

Procedures for Recruitment

Recruitment of the physicians to participate in the research began by me asking Harlem Hospital medical directors from the following departments: medicine, surgery, cardiology, behavioral health, obstetrician-gynecologist (OB/GYN), emergency, pharmacy, pediatrics, pathology, dentistry, ICU, and neonatal (NICU), if a small group of their physicians could participate in a 20–30 minute focus group or 10–15 minute interview. The purpose of the focus group and interviews was for me to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. Out of all, the medical directors I asked, five from the following departments gave authorization for their physicians to participate in the focus groups or interviews: medicine, cardiology, ICU, OB/GYN, behavioral health, and surgery. I then sent a confirmation email (see Appendix A and B) along with a copy of the study's IRB consent form and NYC H+H Deidentification form (see Appendix D). The

deidentification form authorized me to conduct the research. I received all email confirmations on the following dates: (a) medicine physicians' confirmations on April 9, 2019, and April 26, 2019, (b) cardiologists' confirmations on April 12, 2019, (c) ICU physicians' confirmations on May 6, 2019, (4) gynecologists' confirmations on May 8, 2019, and (d) the surgeons' confirmation on May 10, 2019. My goal was to have all the focus groups and interviews completed in 1 month.

Participation

The population identified for the study was 52 Harlem Hospital physicians (attendees, medical residents, medical practitioners, and physician assistants). I recruited Harlem Hospital physicians for the study because they had a pivotal role in diagnosing and treating patients with FBI. Additionally, the physicians had different experiences and knowledge in food safety due to their education, background, gender, and so forth. When using an interpretive description approach, smaller sample sizes are easier to manage because larger sample sizes take more time to analyze (Hennink et al., 2016; Malterud et al., 2015). The suggested sample size when using the interpretive descriptive approach was 5–30 participants before the saturation of the participants' answers began (Throne, 2008). Guest, Nammey, and Mckeena (2016) confirmed three focus groups were adequate to get sufficient information for a research study. Hennink et al. (2016) stated that 16 to 24 interviews were needed to reach meaningful saturation and develop an understanding of issues, but a minimum of nine interviews would suffice. The goal of my study was not to generalize to a larger population but collect more detailed information

unique to the physicians studied. This adds more knowledge to the field of health services when treating patients with FBI and its prevention.

Lastly, the *saturation* of the material occurs when the researcher no longer hears or sees new information in the document (Throne, 2008). To have a good sample of physicians' participation in this study, a minimum of 30 participants for the five focus groups, and eight people for the interviews would suffice. This amount would ensure all physicians' perceptions were covered. During the recruitment process, I was able to recruit 43 physicians for the six focus groups and nine physicians for the interviews. I was also able to reach saturation of participants responses by the fourth focus group and by the seventh interview. Once saturation of participants responses occurred, the focus groups and interviews discontinued.

Data Collection

I conducted six focus groups and nine interviews to get information about physicians' feelings, opinions, and behaviors when they utilized food safety in comprehensive patient care. During the focus group and interview conversations, I asked the physicians open-ended questions, and when asked, I repeated the question if the physician was unclear. Babbie (2017), Leung (2015), Ravitch and Carl (2016), state to establish content validity in the data the researcher must capture the experiences, meaning, and essence of participant responses accurately and truthfully. To establish content validity, I recorded all focus groups and interviews conversations to precisely, and truthfully capture all physicians' responses. Leung (2015), Saldaňa (2016) also stated to prevent excessive verbiage and statements during the coding process the researcher

must ensure the participants stay on topic. During the focus group and interview discussions, I informed the physicians when they went off track while answering the research questions.

I scheduled all focus groups and interviews at the leisure of the physicians, and the timeframes were usually before or after their interdisciplinary rounds. The locations of the meetings were in various conference rooms throughout the hospital, and the interviews were in physician's office or the units conference room. I asked the physicians a series of questions to help answer the research questions to address the problem statement.

Table 1

Research Questions and Corresponding Interview Questions

Research Questions	Focus Group/Interview Questions
RQ1: What type of food safety knowledge do Harlem Hospital physicians possess, and are they able to utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI?	Have you ever treated or diagnosed a patient with FBI? Prior to the diagnosis and treatment of patient with FBI, what did you discuss with the patient? What is your definition of food safety? Do you possess any knowledge of food safety or proper food handling? If so, what do you know? As a clinician, do you believe it is necessary to know about food safety, especially when treating and educating a patient diagnosed with FBI? Have you ever educated a patient in food safety or proper food handling? If so, what type of food safety information did you pass onto the patient? Do you believe physicians should have a conversation about food safety with patients diagnosed with FBI? If so, what should the conversation consist of? If not, why?

RQ2: How do Harlem Hospital physicians acquire their knowledge of food safety, and how did they remember the knowledge for future use to help educate patients diagnosed with FBI?	How did you acquire your knowledge of food safety and proper food handling? If you know food safety and proper food handling, how do you remember this information? Have you ever shared your knowledge of food safety with a patient diagnosed with FBI? If you had questions about FBI, food safety, or proper food handling, how would you find out more information?
RQ3: Have Harlem Hospital physicians ever incorporated food safety knowledge in comprehensive patient care to treat and prevent FBI? If so, how did they utilize their knowledge of food safety to educate the patient?	While working at Harlem Hospital or in your medical career, have you diagnosed or treated a patient with FBI? If so, were you educated in food safety? If you had to treat a patient, what type of food safety education did you discuss with him/her? Why did you choose to share this information with the patient? Is there any technique, or didactic used to help patients remember the information so they would not forget once returning home? How often have you discussed food safety or proper food handling with a patient? How much time do you spend with a patient when educating him/her about food safety?

At the end of the focus group and interviews, I asked the physicians if anyone would like to add, or elaborate their answers; all physicians declined. I then *thanked* all the physicians for their participation and then gave my business card to everyone in case they ever had any questions later on about this study.

Data Analysis Plan

Qualitative data analysis involved the identification, investigation, and comprehension of sequenced themes in a dataset to determine how the material helped answer the research questions (Palinkas et al., 2016). After collecting the focus group

and interview conversations, I converted the audio recordings into transcripts using the Temi Audio Transcription website (Temi, 2019). According to Bradley, Curry, and Devers (2007), Chenail (2012), Corbin and Strauss (2007), qualitative studies generally produce a significant amount of data; however, it may not all be meaningful. To help manage and make my data more meaningful, I coded all the focus group/interview transcripts and then converted them into usable and simplistic datasets.

I then collected, translated, and sorted the transcription data using the *coding method*. Braun and Clark (2006), Salañda (2016) state in qualitative analysis, a *code* is a short word, phrase, or statement that captures the essence of a person's feelings, points of view, thoughts, and experiences. During this process, the researcher takes bits of data and move them around to find similarities in features, the order of presentation, context, and their meaning to create categories, and themes. Braun and Clark (2006), Salañda (2016) state the steps to develop themes include: (a) read all the coded data, (b) group and combine the codes deleting insignificant ones, (c) start documenting the themes and what they mean, (d) re-visit and recode data with the themes, and (e) start writing the story based on the finalized themes. The codes are then converted into usable themes based on their relationship, frequencies, underlining meaning, occurrences, and sequence (Salañda, 2016). Other information I collected from the physicians included the provider's demographic data; such as profession, sex, race, age, and years of medical experience.

Issue of Trustworthiness

Amankwaa (2016), Burkholder et al. (2016), Cope (2014), Guba and Lincoln (1981), Polit and Beck (2012) all stated *trustworthiness methods* are used to produce research findings accepted and believed to be true by other scholar-practitioners. To create a rigorous and robust research document, I used four trustworthy strategies: credibility, transferability dependability, and conformability.

Credibility. *Credibility* is the truth in data or the participants' points of view, interpretations, opinions, and representation of the phenomenon. Amankwaa (2016), Cope (2014), Burkholder et al. (2016), Guba and Lincoln (1981), Plano and Ivankova (2016), Polit and Beck (2012), and Ravitch and Carl (2016) state credibility is when the researcher verified and confirmed what the participants said was accurate. Field observations, an audit trail (materials and notes upheld by another source for authenticity), supported participants accuracy, and then used to document the researcher's decisions and assumptions. I *established the* credibility *of* my research data by allowing the physicians to express their points of view without any interruption, bias, or interpretation from me or other physicians. The data collected came from the physicians' perspective and not my points of view. Plano and Ivankova (2016), and Ravitch and Carl (2016) both stated to establish trust between the researcher and participants, the responses must be credible and valid. Before the focus groups and interviews commenced, I discussed with the physicians, all details, such as purpose, expectations, the signing of consent forms, physicians' demographics, and other pertinent information.

Transferability. *Transferability* occurred when another researcher applied the findings of a study to his or her environment, timeframe or situation (Amankwaa, 2016; Cope, 2014; Creswell & Miller, 2000; Plano & Ivankova, 2016). The researcher must provide sufficient information and research context so the participants and the readers can draw their own conclusions (Plano & Ivankova, 2016). Transferability of my research is possible because my findings were concise and consistently defined in the document. I thoroughly discussed any assumptions made during the transferability process so other scholars would be able to apply the study results to their environment (Amankwaa, 2016; Cope, 2014; Creswell & Miller, 2000; Plano & Ivankova, 2016).

Dependability. *Dependability* is the researcher's ability to prove the instruments and techniques used were consistent, accurate, and when repeated would give the same results (Amankwaa, 2016; Cope, 2014; Guba & Lincoln, 1981; Plano & Ivankova, 2016; Polit & Beck, 2012). The method used to address dependability in my study was the *code-recode method*. The code-recode method is when the researcher examines the data and then reexamines the same data a few days later, hoping to come up with the same results (Guba & Lincoln, 1981).

Confirmability. *Confirmability* is the researcher's ability to verify the findings were correct (Amankwaa, 2016; Cope, 2014; Guba & Lincoln, 1981; Plano & Ivankova, 2016; Polit & Beck, 2012). The process used to ensure confirmability in my study was *peer examination*. Peer examination is when the researcher allows another scholar-practitioner unrelated to the study to review the data results for accuracy and consistency (Guba & Lincoln, 1981). The scholar-practitioner would also examine the

research data to ensure there were no contradictions in study results (Guba & Lincoln, 1981). All checking/re-checking of data in my study, including any changes, are documented in Chapter 4.

Ethical Procedure

No ethical concerns occurred during the study, but since my research had human subjects, authorization was necessary from BRANY, NYC H+H, and Walden University IRB. All physicians' names and personal information were kept confidential by receiving an identification number, and I was the only person who knew which numbers belonged to each physician. Physicians personal information was never shared with any outside party and would only be used for the study. Before the focus group or interview, all physicians were debriefed and asked to complete the consent. Physicians were also asked to complete a one-page demographic form (see Appendix C). If a physician decided he or she no longer wanted to participate in my study, all their information was not used and discarded in the hospital's confidential bin. At the end of the focus group/interviews, I told the physicians "thank you" for their participation in the research. I also told the physicians if they had any questions about the study was to please call me, or BRANY IRB using the phone number on the consent form. After each focus group and interview, I transcribed all the audio data using the Temi Audio Transcription website (Temi, 2019). All the audio data and electronic transcripts are in a secure location in my home office.

Dissemination of Findings

Once I compiled the research findings and study results, I will disseminate the research to the public in the following manner. First, I would present the research

findings to the physicians' direct reports and clinical leadership. Second, I would share the research with Harlem Hospital's Chief Medical Officer and Executive leadership. Third, I will present the study at a future Harlem Hospital Performance Improvement meeting where the entire hospital's clinical team attends. Fourth, I will also submit the research document and results for peer-review publication to reach a broader audience. The hope was other scholar-practitioners would review the research, expand on the findings, and apply the information at another acute care hospital facility.

Summary

In conclusion, Chapter 3 reflected the proposed methodology, including the use of a qualitative approach that involved focus groups and interviews with Harlem Hospital physicians. The research used for the study was unique and consistent with studying physicians' knowledge in food safety, but hopefully, it would also convince hospital's medical and executive leadership to mandate food safety education as part of the patient's comprehensive care plan when there was a diagnosis of FBI.

Chapter 4: Results

Introduction

The purpose of the study was to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I was able to answer the study's research questions by asking physicians how they acquired their knowledge of food safety and remembered it for future use. I also asked the physicians if they incorporated food safety in comprehensive patient care, and if so, how they passed the food safety information to the patient. Before conducting the research, IRB approval was received from three sources: BRANY, NYC H+H, and Walden University's IRB. I received BRANY approval for the study (18-08-303) on November 20, 2018. I received final NYC H+H IRB approval on March 19, 2019, and I received Walden University's final IRB approval (11-21-18-0451088) on April 5, 2019. Chapter 4 includes the study's setting, physicians' demographics, data collection, data analysis, including a discussion of each research question and correspondence, evidence of trustworthiness, and study results. The chapter concludes with the summary.

Study Setting

The study took place at Harlem Hospital, located in Central Harlem, New York. Harlem Hospital offers an array of medical, surgical, diagnostic and family support services to the residents of Central Harlem, East Harlem, West Harlem, Upper Manhattan, and the South Bronx (Dixon, 2016). All participants consisted of 52 Harlem Hospital physicians (24 physicians, one attendee, 23 residents, three physician assistants, and one medical practitioner) who work in various departments throughout the

hospital. Forty-three of the physicians participated in the focus groups and nine interviewed. The specific departments, the number of participating physicians, are listed below in Table 2.

Table 2

Focus Group and Interview Participants' Medical Specializations

Participants	Medical Department						
	Cardiology	ICU	Medicine	Psychiatry	NICU	Surgery	OB/GYN
Physician	1	1	4	1	2	3	10
Attendees	0	0	1	0	0	0	0
Residents	1	3	13	0	0	8	0
Physician Assistant	1	1	0	0	0	0	1
Medical Practitioner	0	0	0	1	0	0	0
Total	3	5	18	2	2	11	11

All focus group and interviews were scheduled via email at a date and time most convenient for the physicians. The first focus group was conducted on April 12, 2019 and the last on May 10, 2019. All meetings were held in various medical conference rooms throughout the hospital at the physicians' convenience. Additionally, the nine interviews were conducted between April 15th and May 10, 2019. The interviews were held in the medical conferences or the physicians' offices at their convenience. The

specific dates, time, location, and duration of the interviews are listed in Table 3. Before the focus group and interviews commenced, it was explained to the physicians I was conducting the study as a doctoral student attending Walden University and not as an employee of Harlem Hospital.

Demographics

A total of 52 physicians participated in my study. The breakdown of their specialization consisted of one cardiologist, six ICU physicians, 16 medicine physicians, two neonatologists, 11 gynecologists, three psychiatrists, and 13 surgeons. Out of the 52 physicians, 33 were male, and 19 were female, and the breakdown by race was Black (49%), Asian (27%), White (18%), Latino (1%), Bangladeshis/Nepal (3%), and 2% not specified. Physicians' years in the medical profession were broken down as 1–5 years (51%), 5-10 years (15%), 10-30 years (29%), 30-40 years (2%), 50+ years (1%). Lastly, out of the 52 physicians, 63% diagnosed patients with FBI, 67% treated a patient with FBI, and 57% educated a patient in food safety. Listed below in Table 3 are all participating physicians' gender, race, and years in the medical profession.

Table 3

Focus Group and Interview Participants' Demographic

Participant	Gender		Race					Years in Profession				
	M	F	Black	Asian	White	Latino	Other	1-5	5-10	10-30	30-40	50+
Physician	13	9	12	5	3	0	3	4	4	7	5	1
Attendees	0	1	1	0	0	0	0	1	0	0	0	0
Residents	21	4	10	8	4	1	0	21	1	0	0	0
Physician Assistant	0	3	2	0	0	0	0	2	0	0	0	0
Medical Practitioner	0	1	0	0	0	0	0	1	0	0	0	0
Total	34	18	25	13	7	1	3	29	5	7	5	1

Data Collection

To complete my study conducted six focus groups, and nine interviews at the convenience of 52 physicians gathering a wealth of information before reaching saturation. Forty-three of the physicians participated in the focus groups (18 physicians, 21 medical residents, one attendee, and three physician assistant), and nine physicians were interviewed (three physician, four medical residents, one attendee, one medical practitioner). The first focus group occurred on April 12, 2019, and the last on May 13, 2019. The duration of the focus groups ranged for 12 to 20 minutes, and the locations were usually in the department or units medical conference room. The first interview also

occurred on April 12, 2019, and the last on May 8, 2019. The duration of the interviews ranged from 8 to 14 minutes, and the locations were usually in the unit's medical conference room. However, the psychiatrists interviewed occurred in their office.

Before the focus group or interviews started, the physicians were asked to review and sign the consent form, followed by completing the participant demographic form (see Appendix C). The demographic form asked physicians to identify their gender, medical status, years of medical experience, and years of experience in diagnosing and treating patients with FBI. Before signing the consent and filling out the participant demographic forms, a total of four surgeons and five gynecologists decided not to participate in my study. These individuals left the room before the meeting started.

All the focus groups and interviews were recorded using the Pro Voice recording application on my cellular phone. Each physician was asked the same questions in the same order, including probing questions when necessary (see Table 1 in Chapter 3). Physicians answered most of the questions, and some physicians gave a more thorough answer than others. Physicians who were unable to answer questions were silent. During the meetings, additional notes were taken, including all physicians' non-verbal communication and gestures. That evening after each focus group and interview, I returned home and uploaded the recorded conversations online into the Temi Audio Transcription website. This program converted the focus group and interviews into word documents. However, it was still necessary to listen to all the recorded meeting and fill in any gaps of information that were not transcribed by the website. The transcript was coded and then inserted into an Excel spreadsheet to create themes that would help

answer the research questions (see Table 4 below). It took approximately 2 hours to code each focus group transcript, and then another hour to turn the coded information into themes. However, it took almost 45 minutes to code the interview transcript once inserted into the Excel spreadsheet, and then another hour to turn the coded information into themes. I explain this process in the upcoming "Data Analysis" section in this chapter.

Lastly, the saturation of the focus groups and interviews information occurred by the third focus group and the fifth interview. I also reached data saturation by the time I started to ask subquestions affiliated with RQ3. I explain this process in the upcoming "Data Analysis" section.

Data Analysis

According to Barun and Clarke (2006), Salaña (2016), the coding process starts by identifying keywords (codes) in the unit of *analysis* (series of lines in the transcript). Then the codes are put into groups to form *clusters and eventually* create *themes*. By putting the word groups into distinctive patterns and looking for commonalities in the arrangement of word clusters, the researcher can establish the meaning of each theme (Barun & Clarke 2006; Saldaña, 2016). After the focus groups and interviews, I converted the recorded conversations into word documents and then coded each transcription. I then highlighted each code using a specific color and placed the codes into a Microsoft Excel spreadsheet to form clusters. The clusters were then analyzed and categorized to create themes. After a thorough review of the transcripts and data analysis, I generated 15 clusters. I then reduced the 15 clusters to 10, and the 10 clusters reduced to five. I then waited a few days before reviewing the clusters again, condensing them into

five themes. I then converted the five themes into three one-word themes: (a) prevention, (b) knowledge, and (c) clinical. A listing of all codes and theme are below in Table 4.

Table 4

Codes and Themes

Theme #	Themes	Corresponding Codes
1	Prevention	To avoid the reoccurrence of FBI
		Educate patients 5-10 minutes
		Avoid eating out at restaurants
		Store food properly
		Adhere to expiration dates
		Cook food to correct temperature
		Refrigerate food
		Separate raw from cooked
2	Knowledge	Medical School
		Internet and online websites
		Through family and friends
		Day to day experience
		Give patient printed material from discharge summary
3	Clinical	Patient's medical history
		Symptoms
		Food consumed
		Hydration
		Stool culture

To establish evidence of trustworthiness in the physicians' responses to create these themes, four strategies were used credibility, transferability, dependability, and confirmability. These strategies are explained in the upcoming sections

Evidence of Trustworthiness

Amankwaa (2016), Burkholder et al. (2016), Cope (2014), Guba and Lincoln (1981), Polit and Beck (2012) all stated *trustworthiness methods* are used to produce research findings accepted and believed to be true by other scholar-practitioners. To create a rigorous and robust research document, I used four trustworthy strategies: credibility, transferability dependability, and conformability.

Credibility. *Credibility* is the truth in data or the participants' points of view, interpretations, opinions, and representation of the phenomenon. Amankwaa (2016), Cope (2014), Burkholder et al. (2016), Guba and Lincoln (1981); Plano and Ivankova (2016), Polit and Beck (2012), Ravitch and Carl (2016) state credibility is when the researcher verified and confirmed what the participants said was accurate. Field observations, an audit trail (materials and notes upheld by another source for authenticity), supported participants accuracy, and then used to document the researcher's decisions and assumptions. I established the credibility of my research data by allowing the physicians to express their points of view without any interruption, bias, or interpretation from me or other physicians. The data collected came from the physicians' perspective and not my point of view.

Transferability. *Transferability* occurred when another researcher applied the findings of a study to his or her environment, timeframe or situation (Amankwaa,

2016; Cope, 2014; Creswell & Miller, 2000; Plano & Ivankova, 2016). I established transferability by providing a concise description of the research findings and any assumptions I encountered, as mentioned in Chapter 1. I acknowledged the outcome of the study, and other scholar-practitioners should be able to apply my results to another clinical environment or medical facility.

Dependability. *Dependability* is the researcher's ability to prove the instruments and techniques used were consistent, accurate, and when repeated would give the same results (Amankwaa, 2016; Cope, 2014; Guba & Lincoln, 1981; Plano & Ivankova, 2016; Polit & Beck, 2012). The method used to address dependability in my study was the *code-recode method*. The code-recode method is when the researcher examines the data and then reexamines the same data a few days later, hoping to come up with the same results (Guba & Lincoln, 1981).

Confirmability. *Confirmability* is the researcher's ability to verify the findings were correct (Amankwaa, 2016; Cope, 2014; Guba & Lincoln, 1981; Plano & Ivankova, 2016; Polit & Beck, 2012). The process used to ensure confirmability in my study was *peer examination*. *Peer examination* is when the researcher allows another scholar-practitioner unrelated to the study to review the data results for accuracy and consistency (Guba & Lincoln, 1981). A Harlem Hospital manager with a Master's in Public Administration (MPA) and knowledge in qualitative analysis reviewed my coding and theme material. The manager also reviewed my study results and confirmed there were no contradictions when comparing the interview and focus group transcripts to the document. The manager concluded the study result was accurate and consistent with the

study. I noted all processes for checking and rechecking of data in the research and explained in detail in the upcoming "Results" section of the chapter.

Results

The study results were based on answers provided by the physicians (attendees, medical residents, medical practitioners, and physician assistants). Three one-word themes emerged from the coded transcripts: (a) knowledge, (b) prevention, and (c) clinical. I will discuss each theme with supporting quotations from the focus group and interview participants.

Theme I Prevention

The prevention theme arose when I asked physicians their definition of food safety, proper food handling, and the prevention of FBI. Physicians' responses varied among medical disciplines. Out of all of the conversations, only two physicians were able to give me the proper textbook definition of food safety. Physician M1 said, "In general, food safety is making sure foods do not have any pathogens that may create an illness." Physician N1 said, "I guess really, food safety is the proper preparation and storage of food to, prevent, infection and illness."

During the focus groups and interviews, the physicians continued to give their own definition and interpretation of food safety. Physician M3 said, "Food safety is when the food has no allergic content." Physician M6 said, "You also have to make sure the food is natural, no added chemical or preservative. You also have to make sure to have a balance between vegetable and meats." Physician B1 said:

> Food safety is the nutrition needs of the patient. The food must be appropriate and meets the patient needs, in terms of the food nutritional need, and the nutritional condition of the patient. Also, based on the medication conditions of the patient; for example, if the patient has diabetes, and they receive the wrong type of food, this could affect the patient's safety later on.

Physicians M3, M2, and C3 stated that their definition of food safety was to eat fresh food prepared at home, and physicians M1, M2, M3, M4, M5, S1, S12, and C3 all stated that they would tell the patient the way to avoid FBI was to not eat out and if he or she ate out, to make sure it was at a reputable restaurant, and to avoid public food trucks. Physician C3 went into more detail and said:

> There were a couple of patients treated for food poisoning and I advised them to only have fresh food. Food not fresh, it depends upon the place you ate, like a restaurant buffet; for example, if the patient went to a restaurant with a buffet and then they started to have abdominal pains. So, then they were recommended to be careful where you went and what you actually ate; the food should be fresh and not raw.

There were also several physicians who were clueless when asked about their definition of food safety, for example, first-year medical residents, surgical, and gynecologists. The cardiologist only had an answer because they treated patients with FBI at some point within their career or during their rotation on the medicine units or the ED at Harlem Hospital. When I asked these physicians their definition of food safety, several of the physicians were speechless with blank looks on their face. Physicians who

worked in the medicine units claim they have diagnosed and treated patient with FBI. The psychiatrist said they never diagnosed or treated a patient with FBI, but they have educated patients in food safety. Physicians who were part of the focus group claimed they treated patient with FBI while in the medicine units, ED or at other times within their career.

Physician NI said:

> Well, in Neonatology, I can honestly not think of a time I treated a patient with a FBI, but while in the Philippines, where I trained for four years, three of those years were clinical. And it was numerous times. I mean numerous times. And when I was a resident in the states, I would say probably three or four times a year, and Oh my gosh, easily a hundred times in the Philippines.

Physician N2 also said:

> In my five years working in the states I never had to educate a patient in food safety, but in my home county, when practicing as a pediatrician, I used to see a lot during the monsoon season. During that time many folks came down with cases of diarrhea related to FBI, especially when they ate out.

During the focus groups and interviews, several physicians went into detail stating food safety is properly washing your hands and basic personal hygiene, not leaving food at room temperature, and cooking food to the correct temperature before consumption. The physicians also spoke about the proper storage of food, adhering to food label expiration dates, and the separating of food in the refrigerator (raw from cooked) to prevent cross-contamination.

Proper Hand washing and Personal Hygiene. Twelve physicians stated one of the best ways to prevent the spread of FBI was by washing your hands, and properly maintaining personal hygiene. Physician S1 said," Proper hygiene and the preparation of food is very important because it could lead to hospitalization if not followed." Physician N2 said, "In my practice, I mostly spoke with new mothers about the use of baby formula. So, I started with proper hand hygiene, the preparation of baby formula, and how they should stay away from the powdered formula." Physician M5 said, "Basically, if you are preparing the food, you should always wash your hands and then wash the food with clean water."

Temperature Control. Twelve physicians stated food safety was when food is kept at the correct temperature. Physician C2 said, "Food safety is the way you keep the food; for instance, certain products should be kept at a certain temperature, and meats, how well they are cooked, the proper cooking and storing process of the food**.** Physician N1 stated:

> I'll ask the patient, especially in the summer, if they had a barbeque, if they cooked the meat thoroughly. I would also ask, let say, if the hamburger was bloody and pink, which would tell me that it was under cooked, but overall did they cook the meat to, I think it should be 165°F.

During the conversations, several physicians did not know the definition of food safety and proper food handling. When asked the question, several physicians did not know or were unable to articulate an answer. First-year medicine residents, surgeons, and gynecologists were clueless, and cardiologist only had an answer because they treated

patients with FBI at some point in their careers or during their rotation on the medicine units or the ED at Harlem Hospital. To the physicians who said that cooking food at the correct temperature was, or if how to ensure food safety, I then asked if they knew what the correct temperature was, or if anyone ever heard of the term *TDZ*? None of the physicians had heard of the term TDZ. During this conversation, Physician C3 stated:

> Food safety is pretty much common sense; for example, like if you open up something, like mayonnaise, you have to refrigerate it once opened. This also includes, milk products and foods like fish. If you are cooking something, or handling a raw product like pork or chicken, you should not be cutting fresh fruit of vegetables on the same cutting board without thoroughly washing the blood off the board, and washing the area, and washing your hands because this will cause cross-contamination. Also, how you store these items in the refrigerator is important as well. Thing like this to me are pretty much common sense, but I do not have a specific way I would educate someone in food safety.

When asked the question about TDZ, physician N1 responded:

> Well, that's a very interesting thing. I usually recommend people use a meat thermometer. I don't know if this is right, but I usually use to 165. But we have a, like we have a chart in our house with the different ones, chicken, turkey. And as a matter of fact, even the other night we were cooking out, we have an electric grill and my husband opens the cabinet and it looks to see what each different meat should be at, but I know for a lot of our patients that's unrealistic. So, the number I usually give is 165 □ F.

Proper Refrigeration. In response to food safety, ten physicians stated you should store perishable foods in the refrigerator or freezer, but never leave these items at room temperature. Physician N2 said, "FBI occurs when you have something in the freezer, then you defrost it, place it back in the freezer, and then defrosts the whole portion again can cause FBI." Physician N1 also said:

> Probably the thing I've asked patients the most was if anything left out? Like a lot of times in the summer people will have picnics and barbecues and I like to ask, you know, was there any mayonnaise or buttered products or dairy products that were left out in the sun and not properly refrigerated? Because often times like the *Staphylococcus*, are from that kind of exposure.

Proper Storage and Expiration Dates Compliance. Nine physicians spoke about the proper storage of food, and five physicians stated food safety is adhering to expiration dates on food labels. Physician B2 said, "Food safety is making sure you follow the expiration dates, where to store certain foods, where they belong." Physician N1 said, "I guess really, food safety is the proper preparation and storage of food to prevent infection and illness." Physician N2 also stated:

> When I'm looking at the food safety, I look at the expiration date on the food products and then how it is being stored and how you handled the foods and before you prepare and the preparation of the food and the cooking and, to the appropriate temperature and the appropriate time.

Separation of Raw vs Ready to Eat (RTE). Eight physicians spoke on food safety as properly separating raw food from cooked food and properly cleaning and

sanitizing utensils (cutting board) to prevent cross-contamination. Physician B2 said, "Food safety is making sure to properly clean certain utensils after you serve products." Physician C2 said, "Properly separating of food before they are cooked; food allergies." Physician I1 said:

> If I'm cutting salad and there's meat, you do not put them in the same area. I don't mix the meat with other items. So, the chicken must stay separately, and the beef stay separately from the other items. So, separating everything and properly refrigerating and freezing.

Preventing Reoccurrence of FBI. Lastly, when all the physicians were asked if they believe patients diagnosed with FBI should be educated in food safety to prevent its reoccurrence, all physicians agreed. Physician B2 and S10 both stated that educating a patient in food safety will help prevent its reoccurrence and another episode of FBI. Physician B1 said, "The patient must also know how to wash their hands and exhibit proper hygiene." Physician I1 said, "Definitely. If you don't educate them, then they won't know, and they can get sick again. It's better for them, for their kids, for their families, for the whole environment in society." Physician C2 said, "Yes, patients knowing this will prevent more episodes and spreading the same condition." B2, "Yes, this is to prevent the reoccurrence of FBI." Physician N1 went into detail and stated:

> Yes, because you don't want another recurrence. You know, if you don't educate the patient, okay, a typical example, let's say people are not washing down the surface area of the kitchen where they prepare the food. Let's say you use a cutting board or whatever sink top. If you're not wiping that down, I usually

> recommend to people, like here in the exam room we use Sani-wipes, but what does that mean to anyone? So, I tell them, you know, if you get some Clorox wipes or something of that nature, Lysol wipes, you're going to wipe down the area before you prepare the food for the kids. Make sure that don't recurrently use the same silverware that hasn't been washed in hot water, either a dishwasher or soapy hot water because you're going to then, like let's say you scramble an egg, and that's the example usually given to patients. If you scrambling and egg, that fork is not thoroughly clean, you can get salmonella even though everything else is clean. So that kind of thing because otherwise you're just going to be back in with the same problem.

To conclude, several physicians were able to explain food safety while other physicians were not, or had a difficult time articulating an answer. Only two physicians were able to give the appropriate textbook definition of FBI, while others gave their own explanation. Most physicians were able to explain basic food safety information offered to patients. This included: hand washing and personal hygiene, proper food storage, adhering to food expiration dates, properly separating foods, cooking foods to the correct temperature, and so forth. As it pertains to food temperature, several physicians stated food safety is cooking food to the correct temperature. However, when asked what that temperature should be, they did not know, nor did anyone know or had ever heard of the term TDZ. All physicians agreed that all patient should learn about food safety to prevent the reoccurrence of FBI or the risk of hospitalization.

Theme 2: Knowledge of Food Safety

How physicians acquired their knowledge and how they educated patients in food safety emerged as the second important theme. The majority of physicians stated they learned about food safety through medical school and medical textbooks. Physicians C3 and I1 said they learned about food safety through continuous reading, medical updates, and their medical textbooks which are updated every two years. Physician B1 said, "I acquired my knowledge at different levels of education in medical school, and on-going medical education and from experience, and literature." Physician N1 went into detail about how she learned about infectious diseases through medical school and not food safety:

> One whole area in medical school is infection control. So, it comes under that, you know, infectious diseases, and they pretty much talk about the ones that are common both here and abroad. So, they'll teach her things like, you know, improperly clean lettuce, you know, in another country could give you amebiasis, for instance, if you're in the Philippines. Whereas you probably won't see that in the U.S. but you can see *E coli*. and other things. So, when you take a course in infectious disease, you're learning about the etiology of multiple organisms across the globe. And then you know, as you're a resident and patient come in, you of course have to present these cases in detail. So, when you're learning the physiology of why something happens, you have to know what the etiology of how it happens. That is when you start reading about that. Although I must say that at least everything I've learned about temperature and not, you know,

> defrosting things, and other things about food safety, has really been as a housewife because temperature of food and other topics of that nature is not something that usually is discuss in the medical curriculum.

Eight physicians said they learned about food safety through various web resources, such as UpToDate, Wikipedia, Google search, USFDA, and so forth. Physician C1 went into detail and said:

> I learned about food safety by looking on the internet, and some of the stuff she does at home is common sense; for example, like if you pick up something, like mayonnaise, you have to refrigerate it once opened, or like, milk products. Foods like fish, if you are cooking something, or if you are handling a raw product like pork or chicken you should not be cutting fresh fruit or vegetable on the same cutting board without thoroughly washing the blood off the board, washing the area, washing your hands because this will cause cross-contamination. Again, the proper storage of food. Thing to me that are pretty much common sense, but I do not have a specific way to educate someone in FBI.

Parent and Family. Eight physicians said they learned food safety through their parents and other family members. Physician I3, S2, S10, and S13 said their mother and grandmother taught them about food safety and always to wash their food when preparing. Physician S10 said, "My mother said I should always wash my meats with vinegar to kill the bacteria." Physician B1 said:

> I was raised that you are to always wash your hands when you get up from sleeping, after going to bathroom, you have to make sure you clean yourself; you

> face, your mouth, your hands, and if you touch the food you must wash your hands, and if you touch the food wash your hands. Do not keep the food open. All these traits were inherited by your parents. Also making sure you store food in the refrigerator depending on what type of product they are.

Daily activities. Eight physicians also stated they learned about food safety through day to day activities and on the job experience. Physicians I1 and S 13 stated that they would consult with their attendees or dietitian as an educational resource. Physician S3 also said he would speak with an infectious disease specialist. Physician I1 also went on to say she needed to acquire more knowledge on the subjects. Some of the physicians said they would typically search for the information on their own. Physician M8 and Physician N1 stated they relied on television. Physician N1 said:

> Honestly, I would say that I listened to the news because when I hear about outbreaks that's what prompts me to read about that thing. Like, you know, when I hear there's an E. coli outbreak or you know the thing recently with the Romaine lettuce, or you hear this, Shiga toxins outbreak from people that ate at a Chinese restaurant. That was a few years ago. So, then you say to yourself, 'Wow,' that's interesting. So, then you read about that. So, I would say that those kinds of sporadic things I get from the news and then that inspires me to Google the stuff.

Lastly, several physicians knew nothing about food safety. The majority of first-year medicine residents, surgeons, and gynecologists were silent when I asked this question. Physician M1 said, "Outside of food storage and making sure the food does not expire, I have no knowledge in food safety."

Patient Education. The knowledge theme also represented physician responses when educating patients about FBI or food safety. Several physicians stated they educated patients but did not note the specifics of what they discussed in the patient's medical record. Several physicians said they educated the patient on his or her diagnosis, treatment, and prevention of FBI, while other physicians did not. However, physicians stated they would print educational material for patients upon request. Physicians M4 and S2 said the patients received information from the UpToDate website, an evidence based clinical resource, on food poisoning, but they also relied on assistance from nursing personnel. Physician M1 stated, "To be honest, I only documented medical education for the patient regarding the diseases that were discussed, but I do not go into detail as to exactly what I discussed. I would just say the patient was provided with education." Physician M6 said:

> I give the patient education material about food safety from discharge summary. So basically, when the patient comes in with the food poisoning, I would print out education material on food poisoning upon discharge for them to read at home.

Physician M7 said, "It is always good to educate the patient. Not always verbally, but it is much better to give them something written." Physician I1 also said:

> Based on their diagnosis and more information, I would probably go to the UpToDate website and then I'll try to print them a pamphlet if they request more information. I'll also educate myself from up-to-date as well. As you know, the UpToDate website is the hospital database where you can search certain diseases and the latest collection of literature. I would also speak with the dietitian here in

> the ICU. So usually we are on board and we speak with her on recommendations of what foods are better for this kind of case.

Physician O17 said:

> I just document education and counseling were provided to the patient, and if I did not have the EPIC access to print something out, I would usually go to the UpToDate website and print out the patient information depending on the topic.

Physician N1 also said:

> What I would do is not knowing if everybody has access to a computer although a lot of people do and there's always the public library system. But what I would do is I would print stuff out for them. I would just Google it, look for a really good source, like the CDC for instance. But something that's kind of layman's appropriate, not like a doctor level, but something that would be practical for them. And I would print it out and give it to them. And then I would say if you have access to computer, you want to learn more about that, you know, you can go to these websites.

In conclusion, theme 2, knowledge, emerged from the data. Physicians were able to articulate how they acquired their knowledge when diagnosing and treating patients with FBI and food safety. The majority of physicians acquired their knowledge in several different ways; for example, medical school or some form of higher education, the internet, and multiple web-based resources, family, reliance on colleagues, day-to-day experience, and so forth. Several physicians had significant knowledge in diagnosing and treating patients with FBI, while some did not. Physicians in medicine and ICU had

more experience and knowledge in FBI than surgeons, gynecologists, or psychiatrist. The cardiologists knew about FBI because they treated patients at some point in their career, or worked in another unit or the ED at Harlem Hospital. Physicians offered knowledge in the diagnosis and treatment of FBI, but providing food safety information to patients is questionable. Several said they educated the patient in the diagnosis and treatment of FBI, but not prevention. Other physicians stated they educated the patient in food safety but did not note the conversation in the patient's medical record. All the physicians said they would offer literature on food safety upon request, and at times would pass the task onto a nurse. Lastly, all physicians stated they spent 5-10 minutes when educating the patient or a family member on the diagnosis, treatment of FBI, and in food safety.

Theme 3: Clinical

The clinical theme evolved when I asked physicians about their ability to diagnose and treat patients with FBI. Most of Harlem Hospital physicians were able to describe how they diagnosed and treated patients with FBI, including how they educated patients before discharge. The medicine and ICU physicians gave more information on this subject than the surgeons and gynecologists. Physician M1, M2, M4, M6, and M7 stated they treated more patients with gastroenteritis than food poisoning, while physicians M3, M5, and C5 went on to say they treated patients with food-related allergies.

Diagnosis. Fifteen physicians stated that before diagnosing the patient, they asked them about their symptoms after they ate the food products. Physician M6 asked

the patient about the intervals between eating and the onset of symptoms. Physician M17 and S13 said he would ask the patient when the symptoms started. Physician M17 said:

> I would ask the patient, when did the symptoms start, what was the last food you ate; did anyone else consume the same food or just the patient. Any recent traveling, did you go camping or did you consume undercooked food?

Physician M4 and M5 stated they would ask the patients what their last meal was, and when was the last time they ate was. They would also ask if there were any changes in their food habits. Physician N2 said:

> If the patient said they ate seafood, I would then ask how they prepared it? How did they cook it, and are there other folks that were having the same symptoms? I would also look at the time between the consumption of food and the onset of the symptoms."

Physician C2 also stated he would ask the patient, when did the symptoms start? Did anyone else get sick with the same condition and when they ate the food? Did this happen before with the same food. What are the symptoms: nausea, vomiting, diarrhea and fever?"

Physician M7 said he would ask the patient:

> What they ate before the symptoms; diarrhea, vomiting, etc. started? We also asked them what they ate, when they ate, how the food was prepared, if any others ate the same food as they and if they had similar type of symptoms.

Physician M1 said he would ask about the patient's fever to determine if it is an infection or FBI. Physician M3 stated:

> When I try to get a history of the patient and suspect FBI, I usually try to outline the sequence of events with symptoms; for example, did it start off with vomiting and lead to diarrhea, or was it just diarrhea alone. Also, if there were any systemic symptoms; like fever, abdominal pain, blood in the stool, etc., to get an idea of the pathogen.

Physician N1 went into detail about her conversation with the patient:

> So, prior to making the diagnosis? Yes, well certainly the first thing, it depends really on their age. Like if it was a newborn, I asked was the formula of powder. Did you mix it after boiling water? Where these, uh, bottles boiled before where the nipples boil before, or was the baby exclusively breastfed? If so, have you experienced any symptoms of illness? Do you wash your nipples before breastfeeding the baby? You know, the mother's natural nipples. Now if it's a, you know, if it's a, uh, formula fed kid, you worry about all the components because the powdered stuff is known to be associated with, uh, you know, organisms, and, uh, if it's a child and in the old days, 30 years ago when I was in the ED, I would ask, when the symptoms started, whether you're associated with blood or mucus in the stool, were they associated with an unusual amount of gas because that is a symptom of jaundice, and usually amount of gas. How many days has it gone on? Was there vomiting associated with it? Uh, what had the child, eaten within that past 24-hour period? Was it food cooked at home or brought from outside? And if so, where did the child eat from outside? Where they had a street fair for instance, uh, had they come from a Chinese restaurant

> and if so, where's that located cross? Cause, should you get more kids from the ED with similar symptoms? You can get a cohort pattern going. I'd ask if anyone in the family is having other symptoms similar to the child's, that would be like my very first series of questions.

Treatment of Foodborne Illness. Before diagnosing the patient, ten physicians stated they would conduct a thorough medical history and examination of the patient. Physician M15 stated history taking of a patient's medical condition, including the fact that what type of food a patient ate is critical when trying to diagnosis FBI. Physician M8 went into detail saying:

> A good history of the patient includes conducting a physician examination. This begins with taking the vital signs of the patient; blood pressure, heart and respiration rate, height and weight. The diagnostic test includes a blood test, and stool culture to determine the parasite or to identify or confirm the diagnosis of FBI.

Several physicians explained how they would treat a patient with FBI. Six physicians stated they would make sure the patient was hydrated. Physician I1 and I5 said they would replace the patient's electrolytes, give some Gatorade, and monitor closely. Physician M8 said, I would just give the patient supportive treatment. I would also hydrate the patient and monitor their electrolytes, and make sure they are OK. I they were vomiting, I would give them Zofran, or medications like that. Physician O17 stated they would order the patient an intravenous (IV), and Physician S13 said, "I would tell

the patient if they get the same symptoms again what to do, like, drink plenty of water before coming to the hospital."

Six physicians stated that they would also order a stool culture to determine if the patient had an FBI. Physician N1 went into more specifics on how she treated a patient with FBI:

> Well, it really depends on what the culture showed, like if it's shigella, they got treated. If it was *Campylobacter* they didn't. With *Staphylococcus*, you let it runs 24-hour course. So, it really depends on what the culture showed me.

To conclude, some physicians were more knowledgeable in FBI, and some were able to articulate how he/she diagnosed or treated FBI better than others. The physicians in medicine, ICU, and the NICU had more experience and were able to articulate the process better than first-year medicine residents, gynecologists, surgeons, cardiologist, and psychiatrist. The neonatologists were able to articulate diagnosing and treating patients of FBI due to living and practicing medicine abroad because FBI in the Southern areas of Asia was more common than in the United States. The gynecologists, surgeons, and cardiologists stated they diagnosed and treated patients with FBI at some point in their career or while working on medicine units or ED units at Harlem Hospital. Lastly, physicians who diagnosed and treated patients with FBI conducted a complete history and physical examination of the patients. They seemed to ask the patient the same question about his or her symptoms, accompanied by abdominal pains and discomfort. But only a few physicians were able to articulate how they would treat patients with FBI.

At the end of each focus group and interview, I asked all the physicians if there was anything else, they wanted to add to the conversation. All physicians declined, except Physician I1 who asked where to go or if I could provide her with additional information on food safety and proper food handling. Lastly, to protect the identity of the physicians, specific identifiers were used for each physician. These identifiers helped conceal the physician's identity and prevent the readers from identifying the physician because the physician population at Harlem Hospital is so small.

Summary

The physicians contributed a significant amount of information during the focus groups and interviews. However, not all physicians were able to answer all the questions asked, and some physicians were able to articulate their answers better than others. It seemed that during the focus groups, some of the physicians' responses derived from what was said by other physicians. The first research question was: What type of food safety knowledge do Harlem Hospital physicians possess, and are they able to utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI? Each physician had a different definition of food safety, and only two physicians were able to give answers similar to the Restaurant Association, the CDC, and USFDA. Several physicians had a basic knowledge of the clean, separate, cook, and chill behaviors to prevent FBI and keep food safe, and their responses were similar to the CDC's "Be Safe Food Campaign." Additionally, some physicians possess the ability to incorporate food safety in comprehensive patient care while others did not. The physicians' main focus was the diagnosis and treatment of FBI,

and only educated the patient when they asked questions about food safety. When this occurred, some of the physicians offered basic food safety educational material to the patient or instructed a nurse to perform this task.

The second research question was: What type of food safety knowledge do Harlem Hospital physicians possess, and are they able to utilize food safety knowledge in comprehensive patient care with a diagnosis of FBI? The majority of physicians acquired their knowledge in medical school, the internet, or other web-based resources: UpToDate, Google, Wikipedia, and so forth. Physicians claimed to remember the material by reviewing medical updates as published. Some physicians said they learned about food safety from their parents and other family members while some gained knowledge through their standard lifestyle. However, several physicians knew nothing about food safety but believed patients should be educated to prevent the reoccurrence or hospitalization due to FBI.

The third research question was: Have Harlem Hospital physicians ever incorporated food safety knowledge in comprehensive patient care to treat and prevent FBI? If so, how did they utilize their knowledge of food safety to educate the patient? Several of the physicians knew how to diagnose and treat a patient with FBI, but they did not include food safety in comprehensive patient care. However, all physicians agreed patients treated with FBI should be educated in food safety to prevent its reoccurrence. Physicians who educated patients before discharge gave them a hard printout of FBI education from the UpToDate website. This information can also be printed in multiple languages as well when necessary. Several physicians said they spent 5-10 minutes

educating the patient about their diagnosis and treatment, but not necessarily about food safety.

Chapter 5 will be the discussion and conclusion of my study. The chapter will also include a more thorough explanation of my findings, recommendations for action, implications for positive social change, and the continuation of the research study by other scholar-practitioners.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of the study was to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care with a diagnosis of FBI. I asked Harlem Hospital physicians how they acquired their knowledge of food safety and remembered it for future use. I also asked the physicians if they incorporated food safety in comprehensive patient care, and if so, how they passed the food safety information to the patient. I based the research study on an extensive literature review and then developed three research questions.

Interpretation of the Findings

In Theme I, prevention, a variety of practices associated with food safety were discussed during the physicians' focus groups and interviews. The majority of physicians knew basic food safety and precautions individuals should take when properly handling foods. A significant number of physicians' answers included: proper handwashing and personal hygiene, the temperature of food, refrigeration, proper food storage, adhering to food expiration dates, and separation of food. These responses correspond to the finding published by the CDC (2018), Byrd-Bredbenner (2013), Restaurant Associates (2017), USDA (2016), and USFDA (2017a), which help consumers handle food safely, but also with a focus on the following food safety components: (a) clean, (b) separate, (c) cook, and (d) chill. They state if consumers followed these behaviors and applied them to their standard knowledge when preparing food, there may be a reduction of FBI episode/outbreaks in their private home. Byrd-Bredbenner (2013) went into more

specifics stating even though consumers are aware of these food safety behaviors, they also understand they are susceptible to certain bacteria. However, some consumers have gaps in basic food safety information which suggest the need to build consumer knowledge, activate consumer existing knowledge, and motivate information application in food safety.

During the focus group and interviews, some physicians gave answers unrelated to the definition of food safety; keeping foods free from illness-causing microorganism or chemicals, and other physicians had some difficulty articulating and giving a thorough answer to their definition of food safety. Physicians who said food safety meant cooking food to the correct temperature, I then asked if they knew what the right temperature was, or if they were familiar with the term TDZ. None of the physicians knew the proper temperatures, nor had they heard of the term TDZ. After the focus group and interviews, some physicians asked where to go for additional information online because they wanted to educate themselves more in food safety and incorporate food safety in their standard work practice. This statement is similar to the finding of Byrd-Bredbenner et al. (2013) who encourages physicians to integrate food safety in their standard work practices, and the findings of Slotnick (1999), Slotnick (2000), and Slotnick (2000a) who stated physicians would educate themselves in new knowledge if it benefits the patient.

Theme 2: Knowledge

For the second theme, knowledge, several physicians expressed how they acquired their knowledge to diagnose, and treat a patient with FBI, including patient education in food safety. During the focus groups and the interviews, physicians stated

they learned about FBI through medical school, medical textbooks, medical updates, and continuous reading. They also learned by using various web-based resources; such as UpToDate, Wikipedia, Google search, and other web-based resources. This is similar to the findings Scaffidi et al. (2017), which states medical students utilized web-based programs like Wikipedia, UpToDate, and so forth as a short-term acquisition to research and references to medical information. Additionally, Koh and Dubrowski (2016), Slotnick (1999), Slotnick (2000), and Slotnick (2000a), who observed that physicians would pursue new knowledge if they believed it would benefit the overall health of the patient.

Several physicians also stated they learned about food safety from their parents and family members, while others said they have learned through on-the-job experience. Some physicians said they educated the patient on his or her diagnosis, treatment, and prevention of FBI, and noted the discussion in the patient's medical record, while others stated they did not. Physicians also stated they would print educational material for patients upon request. Byrd-Bredbenner et al. (2013), CDC (2016), and WHO (2016) stated tactics a physician could use to help patients with basic food safety practices (clean, separate, cook, and chill). Quick et al. (2013) and Rutsaert et al. (2013), stated consumers of all ages were interested in food safety as long as it was tailored and then taught in a personable manner which was easy for them to understand, and sensible to their best interests. Mullan et al. (2015) and, Willis et al. (2015) stated patients trust their PCP or the treating physician and, when offered, will take any education provided in their treatment plan seriously.

Several physicians also stated they seldom discussed food safety with patients and relied on nursing personnel to deliver the food safety education to the patient. This is usually due to their high caseload. This statement is similar to the observations of Collins (2015), and Silverman et al. (2016) who stated physicians rely on assistance from nurses and other medical disciplines to help educate patients. Silverman et al. (2016) also stated that nurses tend to have more patience when explaining health topics and are little more sincere and nurturing to patient needs compared to physicians. At times, physicians used more technical terminology when speaking to the patients making it difficult for them to understand their diagnosis and treatment (Collins, 2015; Silverman et al., 2016).

Theme 3: Clinical

Theme 3, clinical, arose during the focus groups and interviews when the physicians were asked if they ever diagnosed or treated a patient with FBI. The neonatologist, medicine, and ICU physicians were familiar with the process. The cardiologist and some gynecologists were only familiar with the process because they treated patients with FBI at some point in their career. First-year medicine residents, surgical physicians, and psychiatrist were clueless about how to diagnose and treat patients with FBI. Physicians who diagnosed patient with FBI stated they started the conversation off by asking the patients about the symptoms they encountered after consuming the potentially contaminated food. These symptoms included: vomiting, diarrhea, fever, headache, dehydration, cramping, gassiness, abdominal pain, blood in mucus or stool, and other symptoms. These symptoms are similar to the findings by the CDC (2017), Langiano et al. (2012), Switaj et al. (2015), and WHO (2015, 2017) which

mentioned studies about the diagnosis and treatment of patients with FBI, including its symptoms. Switaj et al. (2016) went into details explaining that the onset of symptoms determines that the microorganism and toxin caused by the illness.

Physicians also spoke about another part of the diagnosis process, which included conducting a complete patient history and physical examination. The process included monitoring the patient's vital signs, such as loss of electrolytes, change in blood pressure, and other conditions. This process coincides with the findings of Henderson and Jackson (2014) and Switaj et al. (2015) which explained how physicians conduct a history and physical examination to determine the patient's diagnosis and overall condition. During this process, the physician orders a CIDT or stool culture to help rule out FBI or determine the microorganisms causing the illness. This approach is also similar to the findings provided by the CDC (2016a), Gallagher (2017), Huang et al. (2016), and Switaj et al. (2015) which mention physicians ordering CIDT or stool cultures to identify the FBI, but highly recommends the physicians place a second CIDT order to get accurate results. Once FBI was confirmed, the physicians would then treat the illness with antidiarrheal, and antiemetic medication, including increasing liquid to prevent dehydration. This regimen is similar to the findings of Giddings (2017), Riddle et al. (2017), and Switaj et al. (2015) discussed the process and standard medications used to treat FBI.

Theoretical Foundation

The theoretical base for the study was the four-stage theory of physicians' self-directed learning episode, or the Slotnick four-stage theory of physicians' learning

(Slotnick, 1999, 2000a). The Slotnick four-stage theory of physicians' learning consisted of four components: (a) Stage 0, scanning the problem; (b) Stage 1, evaluating the problem; (c) Stage 2, learning skills and knowledge, and (d) Stage 3, gaining experience.

The first component is Stage 0 or scanning the problem. In this stage of learning, the physician assesses the environment, becomes familiar with the community health concern, and then determines what new knowledge was required to address the health problems (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). For the purpose of this research, and as learned throughout this study, due to patients becoming ill, physicians should know how to diagnose and treat FBI, including educating the patient in food safety (Byrd-Bredbenner et al., 2013). Physicians know how to diagnose and treat patients with FBI, but do not always offer them food safety education. All physicians stated patients should know about food safety to prevent the reoccurrence of FBI. However, food safety was not always part of the patient's comprehensive care plan. I concluded physicians know how to treat patients with FBI, and several have basic knowledge in food safety, but the physicians did not offer patient education unless requested. The information physicians gave to the patient was usually about their diagnosis and treatment of FBI and not about food safety.

The second component is Stage 1, or evaluating the problem. This was when the physician acquired new knowledge by participating in specific learning activities focused on gaining the experience needed to address the environmental concerns (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). For the purpose of this research, Harlem Hospital physicians acquired their knowledge in FBI through many mechanisms: medical

school, web-based resources, for example, Google, UpToDate, Wikipedia, family/friends, and other resources. If the physician lacked the necessary knowledge to treat the patient, he or she would search for a solution. When some of the focus groups and interviews ended, several physicians inquired about where to go online for additional information on food safety. I concluded that physicians searched for answers to problems to treat patients with FBI, but they did not always educate the patient in food safety unless requested. Information given to the patient usually pertained to their diagnosis and treatment, and not food safety.

The third component is Stage 2 or learning skills and knowledge. This stage occurred after the physicians had acquired knowledge to address the health/medical concern they then decided if the knowledge gained was the best course of action towards the solution. After the physicians learned the knowledge and experiences needed to solve the problem, including if what they learned was beneficial to their skill-set, they may incorporate the knowledge into their standard work practices (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). For the purpose of my research, I concluded that Harlem Hospital physicians had all the necessary skills to properly diagnose, and treat patients with FBI. Before treatment, physicians would complete a thorough examination and medical history of the patient, which includes asking the patient about his or her symptoms. The majority of physicians also know the basic components of food safety (clean, separate, cook, and chill). However, they do not always include food safety in comprehensive patient care, and food safety education was offered to patients only when requested. I also concluded that the physicians know how to identify, diagnose, and treat

a patient with FBI. Physicians also know the basic components of food safety but did not always offer this knowledge to the patient unless asked.

The fourth component is Stage 3, or gaining experience. This was the final step in the physicians' learning process and occurred when physicians were comfortable with what they learned. The physicians developed a routine and incorporated the knowledge/talent in their standard work (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, & 2000a). Once the physicians used the knowledge and noticed the change had resolved the health concern, they may continue to reassess the problem/situation seeking room for improvement (Koh & Dubrowski, 2016; Slotnick, 1999, 2000, 2000a). For the purpose of this study, physicians have basic knowledge of food safety but did not always educate the patient unless asked. If the physician educated the patient in food safety, he or she did not always note the conversation in the patient's medical record. Physicians also stated knowing food safety would help benefit the patient and prevent his or her readmission. Some physicians also said they wanted to seek additional education on food safety during the focus groups and interview conversations. This knowledge may help prevent the reoccurrence of FBI for patients they treat.

For the physicians to align themselves with the theoretical foundation, he or she must:

1. Assess the patient by asking probing questions and then conduct a history and physical examination to determine a treatment plan. If not, acquire new knowledge through other resources to treat the patient.
2. Acquire the new knowledge through multiple resources; online, peers, and so forth.

3. Determine if the knowledge gained is the best course of action.
4. If the knowledge gained is the best course of action, then incorporate that knowledge into his or her standard work practice. If not, start the process again to find a solution to the problem.

Most physicians who participated in this study were able to relate to this foundation. However, it only mattered to physicians who treated patients with FBI. All physicians believe patients treated for FBI should be educated in food safety to prevent its reoccurrence

To conclude, some of Harlem Hospital physicians followed the principles of the Slotnick four-stage theory of physicians learning: (a) Stage 0, scanning the problem; (b) Stage 1, evaluating the problem; (c) Stage 2, learning skills and knowledge, and (d) Stage 3, gaining experience. The physicians' goal was to diagnose and treat patients with FBI. However, food safety was not always part of the patients' comprehensive care plan and only offered to the patient upon request. After the focus groups, some physicians inquired about where to go online to obtain additional information because they lacked knowledge in food safety. This coincided with the Slotnick theory, if the physician believed the new knowledge was for the betterment of the patient, they would learn the knowledge and apply it to their professional practice (Slotnick, 1999, 2000, 2000a).

Limitations of the Study

There were three main limitations to the study. First, physicians may provide me with answers they think I want to hear because I am the Director of Food & Nutrition Services at the study hospital. However, before the focus groups and interviews began, I

reminded physicians the questions asked, and the data collected were solely for the study. I also told the physicians all focus group and interviews responses would not impact their working relationship between hospital leadership or their direct reports. Moreover, I assured the physicians all their answers would be kept confidential, and the study would not contain any of their personal information.

The second limitation was appropriately interpreting physicians' responses and answers to the focus group and interview questions. I achieved understanding physicians' responses by staying neutral, not agreeing or disagreeing with any of the physicians' answers, or offering any opinions during the conversations. During the focus group and interviews, I asked the physicians open-ended questions and repeated the questions when asked.

The third limitation was the physicians not sharing their thoughts and ideas because they believed the study was inadequate or unnecessary. As stated by Slotnick (1999, 2000, 2000a), if the physician thought the purpose of learning new knowledge was for the betterment of the patient, they would assist and participate in the study. Many of the physicians' overall goal during a patient clinical assessment was to diagnose, treat, and educate the patient to prevent hospital readmission or the reoccurrence of the same incident or ailment.

Lastly, the fourth limitation is participants not incorporating food safety in comprehensive patient care because they no longer treat patients with FBI. Prior to their current medical occupation, the last time some physicians treated a patient with FBI was during their medical residency or clinical rotation while working in the medical-surgical

units or the ED at the hospital. However, all physicians stated a patient treated with FBI should be educated in food safety to prevent its reoccurrence.

In summary, all the physicians were asked the same questions in the same manner. Although I cannot control being employed by Harlem Hospital, I can control how to ask the physicians the research questions. Overall, the factor of bias on behalf of the physicians was a limitation to the study because I cannot control their thoughts, feelings, and answers. Additionally, to prevent me from being influenced during the data analysis process, much effort was put into maintaining an unbiased mindset. Although not perceived as a limitation to the study, other scholar-practitioners may believe it is because I am the Director of Food & Nutrition Services at the study hospital.

Recommendations

The data collection and the results of the study are the bases for the following five recommendations:

- My first recommendation is to conduct this study at other acute care hospital facilities.
- My second recommendation would be to conduct the same study in the outpatient clinics and determine if the physicians' incorporated food safety knowledge in comprehensive patient care with a diagnosis of FBI. Do the outpatient physicians possess some understanding of food safety or proper food handling as inpatient physicians?
- My third recommendation would be to expand the study by recruiting physicians from other medical professions/specialties; for example, geriatrics,

gastroenterology, pediatrics, pathology, and so forth. This is also to determine their knowledge in food safety and their ability to incorporate food safety knowledge in comprehensive patient care when treating patients with FBI.

- My fourth recommendation would be to expand the scope of the study to also include nursing personnel; register nurses, nurse practitioners, and so forth. Nursing staff plays an intricate role in the treatment of education of patient diagnosed with FBI.
- My fifth recommendation is to interview patients who received basic food safety education at the bedside. This is to determine if they incorporated the knowledge acquired from physicians into their standard lifestyle and daily routine when preparing foods for themselves and their family.

Implications of Positive Social Change

My research study has created social change implications that affected physicians at Harlem Hospital. There is now an awareness among the hospital's medical community, and an increased conversation between physicians about the importance of food safety and its impact on the Harlem residents if not followed. After some of the focus groups and interviews, physicians asked where to go online for additional information on basic food safety; other than what was available on the UpToDate website. Due to this request, I created a two-page document for physicians (see Appendix E), which gave some basic information on food safety and proper food handling. A manager in the Office of Public Affairs sent this document to all medical staff, and they were encouraged to review the material and share it with patients when necessary. Other than English, this document is

also available in Spanish and French-Creole, but if necessary, could easily be translated into any language by utilizing the hospital Cyracom Services. The increased awareness of food safety among physicians may start the beginning of standardized comprehensive patient care and food safety education when treating patients with an FBI.

Physicians can change and influence the perceived behaviors and adverse outcomes of patients treated with an FBI by educating them in basic food safety at the bedside before discharge. There is also a need for physicians' intervention to create further initiatives and educational programs with an emphasis on food safety to prevent the reoccurrence of FBI. Not all ethnicities share the same views on food safety, so it may be necessary for physicians to educate the patients using culturally and age-appropriate learning tools. The use of different didactics to deliver messaging to patients could affect their behavior and how they keep food safe for themselves and their families. So, the teaching methods must correspond to what is best understood by the patient.

My study results have also indicated physicians do not always use food safety knowledge in comprehensive patient care with a diagnosis of FBI. So, there may be a need to educate or retrain physicians in food safety. Harlem Hospital's Department of Food & Nutrition Services, the Department of Medicine, and Community Outreach could collaborate and create a standardized food safety tutorial for physicians. This information will help educate physicians in basic food safety who can then pass onto the patient to share with their families and apply to their daily lifestyles. Physicians are now also equipped with up-to-date information about food recalls and industry trends about food safety.

Lastly, another implication of positive social change is the study will add to the body of literature about physicians' ability to utilize food safety in comprehensive patient care. I completed the study with the notion that physicians could use their knowledge in food safety to educate patients in acute care, but also continue research in the outpatient clinics. Determining if outpatient physicians utilize food safety in comprehensive patient care may be worth exploring. Patients with mild cases of FBI usually receive treatment in the clinics or ED, while patients with more severe cases are often hospitalized and treated in acute care. Also, inpatient physicians may refer their patients to outpatient services, especially if the patient does not have a PCP. Additionally, most patients treated with an FBI have little to no understanding of food safety and proper food handling to keep themselves or their families safe. So, my study may benefit future scholars wanting to conduct additional research about physicians' ability to utilize food safety knowledge in comprehensive patient care.

Conclusion

FBI continues to affect patients in their private homes because individuals lack the skills and knowledge to keep food safe. There is an opportunity for physicians to educate patients diagnosed with FBI at the bedside before discharged from the hospital. The study results concluded that some physicians at Harlem Hospital utilized food safety knowledge in comprehensive patient care, while other physicians did not. However, all physicians stated patients must be educated in food safety to prevent the reoccurrence of FBI. Due to the commonality of FBI in society, other scholar-practitioners recommend physicians develop programs and find ways to incorporate food safety in their standard

work practice. I discovered physicians at Harlem Hospital know the fundamentals of food safety as it relates to the components: clean, separate, cook, and chill. Additionally, food safety education offered to patients was minimal. However, if the patient requested food safety material, the physician would provide the hard-copy information to the patient or pass the task onto the nurse.

There should be a collaboration between Harlem Hospital's Department of Food & Nutrition Services, Department of Medicine, and Community Outreach to help create an awareness of FBI. By leaders in these departments allying, they will be able to provide physicians with information to help educate patients in the prevention of FBI which they can share with their family. However, further research is necessary to determine if patients who receive food safety education from a Harlem Hospital physician incorporated that information into their lifestyle.

Lastly, there is a need for physicians to focus on self-efficacy, develop food safety programs, and incorporate food safety into their standard work practice. With an increased understanding about food safety practices amongst physicians, there is the likelihood physicians will begin to incorporate food safety in comprehensive patient care. The patient may then pass this information onto their family and then incorporate the knowledge received into their daily lifestyle. This approach in patient care may help reduce rates of FBI into the study hospital, creating a positive social change.

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Appendix A: Focus Group Recruitment Email

To: *Unit Medical Director*
From: Sean Shivers, Food & Nutrition
Subject: Research Study Interview, Physician Knowledge in Food Safety
Date: April 2019

Thank you and your team for agreeing to participate in this doctoral research study approved by New York City Health + Hospital, Harlem Hospital Department of Medicine and Walden University. These institutions have authorized me to conduct doctoral research to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care when there was a diagnosis in foodborne illness (FBI).

By you and your team agreeing to participate in a 20-30 minutes focus group, it will give me some valuable first-hand information from your own experience on this topic. I am trying to capture all your thoughts and perspectives on educating patients on food safety. Your feedback may help prevent and reduce future episodes/outbreaks of FBI, decrease the hospital's readmission rates of patients with FBI, and help reduce rates of FBI in the Harlem community creating a positive social change.

Attached is a copy of H + H Deidentification form which authorizes me to conduct this research and the consent form that all physicians will fill out which gives some additional details to my study. Please let me know a day and time most convenient for you and your staff so we can meet? If you have any questions, please respond to this email or give me a call directly at extension #1936.

Thank you for your time and consideration in assisting me with this research. It is greatly appreciated.

Appendix B: Interview Recruitment Email

To: *Physician's Name*
From: Sean Shivers, Food & Nutrition
Subject: Research Study Interview, Physician Knowledge in Food Safety
Date: April 2019

New York City Health + Hospital, Harlem Hospital Department of Medicine, and Walden University has given me authorization to conduct doctoral research to determine if Harlem Hospital physicians utilized food safety knowledge in comprehensive patient care when there was a diagnosis in foodborne illness (FBI).

As a physician, you were referred to me by_____, and I am asking if you would please participate in a 15-20 minutes interview to give me some valuable first-hand information from your own experience on this topic. I am trying to capture your thoughts and perspectives on educating patients on food safety. Your feedback may help prevent and reduce future episodes/outbreaks of FBI, decrease the hospital's readmission rates of patients with FBI, and help reduce rates of FBI in the Harlem community creating a positive social change.

Attached is a copy of H + H Deidentification form which gives me authorization to conduct this research and the consent form which gives some additional details to my study. If you agree to participate, please let me know a day and time most convenient that fits to your schedule so we can meet? If you have any questions, please respond to this email or give me a call directly at extension #1936.

Thank you for your time and consideration in assisting me with this research. It is greatly appreciated.

Appendix C: Participant Demographic Form

Please answer all questions. Your information will be kept confidential and will only be used for the purposed of this study:

1. ID #: _____
2. Gender (√ which applies): Male Female other: _____
3. Race: ϒ Black ϒCaucasian ϒAsian ϒNative American, ϒAfrican ϒOther: _____
4. Status (√ appropriate title): ϒ physicians attendee ϒmedical resident
   physician assistant
5. Medical Specialty: _____
6. Years in Medical Profession (√ which applies): ϒ 1-5 ϒ 5-10 ϒ10 – 30 ϒ 3940
   ϒ50+
7. Department you work at Harlem Hospital:
   - ϒ Medical Surgical Unit (Floor) _____
   - ϒ Intensive Care Unit
   - ϒ Emergency Department
   - ϒ Other: _____
8. Have you ever (√ all that applies):
   - ϒ Diagnosed a patient with foodborne illness
   - ϒ Treated a patient with foodborne illness
   - ϒ Educated a patient in food safety or proper food handing

Thank you

Appendix D: Health + Hospital Deidentification Letter

DEIDENTIFIED DATA SHARING AGREEMENT

This **DEIDENTIFIED DATA SHARING AGREEMENT** ("Agreement") is made as of the 18th day of January, 2019 ("Effective Date") by and among New York City Health and
Hospitals Corporation ("H+H'), having its primary offices at 125 Worth Street, New York, NY, 10013, Sean Shivers, H+H employee ("Student") and Walden University, a subsidiary of a forprofit, Public Benefit Corporation ("Walden" or "Data Recipient"), having its primary offices at 100 S Washington Avenue # 900, Minneapolis, MN 55401 (each a "Party" and, collectively, the "Parties").

WHEREAS, Student is also enrolled at Walden in order to obtain a doctorate degree;

WHEREAS, in order for Student to satisfy the requirements of his doctorate program, he will undertake a research project at H+H entitled Utilizing Food Safety Knowledge in Comprehensive Patient Care Among Harlem Hospital Physicians (the "Project");
WHEREAS, the Project has been reviewed by the Biomedical Research Alliance of New York ("BRANY') IRB,

WHEREAS, Student intends to submit a report with results from the Project ("Report") to Walden in satisfaction of the requirements for obtaining his doctorate degree;

WHEREAS, the Report will include deidentified aggregate health information derived from H+H's physicians, attendees and residents (the "Data");

WHEREAS, H+H intends to allow the Student to share Data with Data Recipient only for purposes of the Project (the "Purpose"); and
WHEREAS, H+H is willing to allow disclosure of Data to Data Recipient in connection with the Purpose, subject to the terms and conditions contained in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained in this Agreement, and other valuable and good consideration, the receipt and sufficiency of which is hereby acknowledged, the Panies agree to the following:

1. PURPOSE OF AGREEMENT

a. This Agreement sets forth the terms and conditions pursuant to which Data Recipient and Student may use and disclose Data.

2. RIGHTS AND OBLIGATIONS OF THE PARTIES

a. Student

i. Student shall only provide deidentified aggregate health information ("Data") to Data Recipient.

ii. Student shall comply with H+H' s research policies and procedures in conducting the Project.

iii. Notwithstanding language to the contrary in the Agreement, Student may publish Student's findings based on Student's use of the Data, subject to

Student's obligations under applicable law, regulations and the following:

1. Student shall provide H+H with a copy of any material he intends to publish or publicly communicate at least thirty (30) days in advance of when he intends to publish or publicly communicate so that H+H shall have sufficient time to provide comments. Under no circumstances may Student publish or publicly communicate any information or material that refers to or is based upon the Data prior to receiving written approval from H+H

2. Student shall not identify, name or acknowledge H+H in any dissertations, publications, or presentations that use or disclose the Data;

3. H+H shall have a royalty-free, non-exclusive and irrevocable license to reproduce the material once published.

b. Data Recipient

c. Data Recipient shall not use or disclose the Data for any purpose other than as described in this Agreement.

d. Data Recipient acknowledges and agrees that H+H owns all right, title and interest in and to all Data. The transfer of Data to Data Recipient does not give Data Recipient any rights in such Data other than as specifically set out in this Agreement. Nothing herein shall be construed to restrict H+H's right to use or disclose the Data.

e. Data Recipient warrants and covenants to H+H that it, and any Authorized Users (as defined in Section 2.fbelow) (i) will not violate any laws or regulations by using or disclosing Data for purposes or to persons not set forth in this Agreement; (ii) shall not, nor attempt to, nor permit, authorize, enable, or request any other party to affiliate or link Data with any

individual or personal information, or make any efforts to reverse engineer or manipulate the Data in any way that would expose or enable the identification of an individual; (iii) will not release the identity of any individual or identifiable information to others; and (iv) will not redisclose any Data to a third party without the prior written permission of H+H. Notwithstanding anything to the contrary herein, the parties understand that, to the extent Data is included in the Report (or a draft thereof), (a) it may be disclosed to Data Recipient's affiliates and third-party service providers (such as its technology providers) that are subject to obligations of confidentiality and limitations on attempting to re-identify Data as outlined in this Agreement, and (b) will be published in accordance with Section 2(a)(iii).

f. H+H authorizes Data Recipient to access Data as needed to accomplish the

Project, including any advisors or other employees of Walden ("Authorized Users") needed to review or approve the Project, provided that Data Recipient represents in writing that it has trained Authorized Users as to the confidential nature of the Data, and its proper handling under the terms of this Agreement and any applicable federal or state law, regulations and guidelines. Data Recipient shall provide H+H, in writing, a list of Authorized Users. Authorized Users shall include, without limiting the foregoing, the Data Recipient's faculty and employees that are overseeing the Project. No Authorized User may access or receive Data before the Authorized User is identified to H+H in writing. Data Recipient shall immediately notify H+H if any Authorized User has failed to comply with the terms of this Agreement and has compromised the privacy and security of the Data. Such conduct will result in the immediate removal of the user from the list of Authorized Users and the immediate termination of Data access to that specific user

g. Notwithstanding language to the contrary in the Agreement, the parties understand that it is the Student's responsibility to obtain H+H's prior written consent for publication of the Data in accordance with Section 2(a)(iii). Data Recipient shall not publish Student's findings or any other documents or information that contain, describe, refer to or rely on Data provided by H+H pursuant to this Agreement until Student has informed Data Recipient in writing that H+H has provided appropriate consent.

h. To the extent Data Recipient obtains or receives protected health information or

PHI, as that term is defined in 45 C.F.R. 164.501 of the HIPAA Regulations, of H+H patients as part of the Project, Data Recipient shall maintain the security and confidentiality of the PHI in accordance with

applicable law and in manner that prevents further use and disclosure, shall not further disclose such PHI, and shall inform H+H of any such disclosure of PHI.

i. Except as set forth in this Agreement, Data Recipient shall not reproduce the Data in any form without the prior written consent of H+H.

j. Data Recipient will report to H+H any use or disclosure of Data it becomes aware of that is not permitted by this Agreement.

3. BUSINESS INFORMATION OF H+H

a. For purposes of this Section, "Business Information" shall mean all information relating to the business of the H+H, as appropriate, including but not limited to information concerning operations, employees, contractual arrangements, business plans, revenues, assets, costs, liabilities, suppliers, employment practices and plans for future development. The term "Business Information" does not include information that has become generally available to the public by the act of one who has the right to disclose such information without violating any right of the entity to which it belongs, or as provided by law or constitutes Protected

Health Information as defined in the Health Insurance Portability and Accountability Act and regulations promulgated thereunder.

b. Within the context of this Agreement, Data Recipient may come into contact with Business Information of H+H. Data Recipient agrees to ensure that the Business

Information is maintained in the strictest confidence and shall not disclose H+H' s Business Information to any unauthorized person or entity other than as permitted herein without the prior written approval of H+H. Data Recipient agrees to protect Business Information existing in any form. Where the Business

Information is transmitted or maintained electronically, Data Recipient agrees to ensure that all employees will comply with appropriate security policies, practices and standards to prevent unauthorized access to any equipment, facility and/or system in which the Business Information is maintained and through which it is transmitted, regardless of location. Data Recipient agrees that only those who legitimately require access to the Business Information for the Project and within the context of the Agreement will have access to the Business Information, and that the Business Information shall be used only for the purpose of providing described in this Agreement.

c. Additionally, upon termination of this Agreement, or upon request H+H, and to the extent practicable and permitted by law, the Business Information shall be returned to H+H and no copies shall be retained by Data Recipient.

4. SECURITY AND CONFIDENTIALITY

a. Data Recipient shall implement and maintain appropriate data security and privacy policies, procedures and safeguards as needed to assure that the Data it

receives hereunder remains secure, confidential and de-identified as required by this Agreement and applicable laws, rules and regulations.

b. Accounting for Unauthorized or Inadvertent Use or Disclosure. In the event that an unauthorized or inadvertent use or disclosure of Data provided by H+H is made to a third party by Data Recipient, Data Recipient shall ensure that a proper record of such unauthorized or inadvertent use or disclosure is kept and immediately provided to H+H. Data Recipient shall also assist in any subsequent investigation of the unauthorized or inadvertent use or disclosure and mitigate any possible resulting damages of same.

5. INDEMNIFICATION

a. In no event will H+H be liable for any use by Data Recipient, Authorized Users and/or third parties of the Data, or for any loss, claim, damage or liability, of whatsoever kind or nature, which may arise from, or in connection with, the use or dissemination by Data Recipient of the Data, except as otherwise stated herein.

b. Data Recipient agrees to defend, indemnify and hold harmless H+H, and its employees, officers, subcontractors, agents, and other members of its workforce

(each of the foregoing hereinafter referred to as "Indemnified Party") against all losses suffered by H+H and all liability to third parties arising from or in connection with:

i. any breach of the provisions of this Agreement by Data Recipient;

ii. any negligent act or omission or intentional act by Data Recipient , its employees, agents or contractors or Authorized Users that results in a violation of any applicable laws, rules, or regulations; or

iii. any breach by a third party possessing Data disclosed to it by Data

Recipient or an Authorized User of any applicable provisions of this Agreement.

c. H+H hereby represents that it shall be responsible for the acts or omissions of its officers, employees, and agents in connection with this Agreement. Such representation is based upon and limited to the obligation of the City of New York to defend, indemnify, and hold harmless H+H, its officers, employees, and agents from any and all liability and damages arising from or in connection with the provision and delivery of health services.

6. TERM AND TERMINATION

a. Term

i. This Agreement shall commence as of the Effective Date and shall expire 6 months from the date of submission of Student's Report to Data
Recipient, unless earlier terminated by either Party in accordance with the terms hereof.

ii. The continuation of this Agreement is contingent upon continued BRANY IRB approval.

b. Termination for Cause. Breach of a material provision of this Agreement or applicable laws or regulations by Data Recipient, Authorized Users, or third parties provided Data by Data Recipient or Authorized Users shall be grounds for termination of this Agreement by H+H. Upon becoming aware of such a material breach, H+H may do one or more of the following:

i. Provide an opportunity for the Data Recipient to cure the violation within 30 days, and terminate the Agreement if Data Recipient does not cure or end the violation within the time specified by H+H;

ii. Demand assurances from the Data Recipient that remedial actions will be taken to remedy the circumstances that gave rise to the violation within a time frame set by, or approved by, H+H; ill. Immediately terminate the Agreement; and/or

iv. Determine that no further Data will be released to, nor agreements entered into with, Data Recipient for a period of time to be determined by H+H.

c, Termination by H+H without Cause. H+H may terminate this Agreement at any time by providing 30 days written notice to Data Recipient.

d. Effect of Termination.

i. Data Recipient will not be entitled to any damages for reason of the termination of this Agreement.

ii. Upon the termination of this Agreement for any reason, the confidentiality provisions set forth herein shall continue to apply to the Data shared with Data Recipient pursuant to this Agreement. Except as provided in paragraph (iii) of this subsection and except to the extent such Data is included within the Report, upon written request after termination of this Agreement, for any reason, Data Recipient shall return or destroy the Data provided by H+H that Data Recipient maintains in any form, and all copies of the Data in all its forms. Data Recipient will confirm in writing to H+H Data Recipient's destruction or return of Data, and all copies, within 60 days of the termination of this Agreement.

iii. In the event that Data Recipient determines that returning or destroying all of the Data, or all copies of Data, is infeasible, Data Recipient shall provide to H+H notification of the conditions that make return or destruction infeasible. Upon receipt by H+H of such notification that return or destruction of the Data is infeasible, Data Recipient shall extend the protections of this Agreement to such Data and limit further uses and disclosures of such Data to those purposes that make the return or destruction infeasible, for so long as said Data Recipient maintains such Data.

7. NOTICE

a. All notices under this Agreement shall be in writing and shall be deemed delivered as follows: (l) if by personal delivery or electronic mail, upon receipt; (2) if by Federal Express or by another national overnight courier, upon the second business day after deposit with such courier; or (3) if by US certified mail, return receipt requested, upon the fifth day after deposit in the mail. All notices shall be sent to the names and addresses set forth below. Either Party may change its contact information by notice to the other; any such change shall take effect immediately upon delivery of such notice. Any notice pursuant to this Agreement shall be given or made to the respective Parties as follows:

If to H+H:	If to Walden:
New York City Health and Hospitals C.orp.	Walden University 650 South Exeter Street

C/O Office ofResearch Administration Christina Pili 125 Worth Street, Room 401 New York, New York 10013 email: christina.pili@nychhc.org	Baltimore, YD 21202 Attention: Divisional Counsel

8. ADDITIONAL PROVISIONS

a. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this agreement.

b. Jurisdiction, Venue, and Applicable Law. This Agreement shall be governed, construed, applied and enforced in accordance with the internal laws of the State of New York.

c. Survival. The Parties' obligations under Sections 2, 3, 4, and 5 shall survive termination of this Agreement.

d. Non-Assignment Clause. Data Recipient and Student agree that both shall not subcontract, assign, transfer, convey or otherwise dispose of its obligations under this Agreement except by operation of law, without the prior written consent of H+H, except that Data Recipient may assign this Agreement to a purchaser of substantially all of its assets. Where Data Recipient assigns this Agreement, it shall notify H+H in advance of any such assignment.

e. Agency. For purposes of this Agreement, Data Recipient shall be deemed to be acting as an independent entity, and not an agent, of H+H.

f. Nothing express or implied in this Agreement is intended to confer, nor shall anything herein confer, upon any person other than the Parties, any rights, remedies, obligations, or liabilities whatsoever.

g. Data Warranties. Data Recipient's use and evaluation of the Data shall be at its own risk. H+H represents that it has the right to provide the Data as contemplated hereunder and will ensure that Student de-identifies Data provided to Data Recipient under this Agreement in accordance with applicable laws. All Data is provided by H+H is "AS-IS" and without any warranty, express, implied or otherwise, regarding such Data's accuracy or performance.

h. Waiver. No provision of this Agreement may be waived except by an agreement in writing signed by the waiving Party. A waiver of any term or provision shall not be construed as a waiver of any other term or provision.

i. Counterparts. This Agreement may be executed in one or more counterparts, via facsimile, or through e-mail exchange of executed PDF reproductions of this

Agreement.

j . Modification. This Agreement rnay, frorn tirne Lo time, be modified by a writing signed by authorized representatives of the Parties. It may not be altered, modified, rescinded or extended orally

k. Interpretation. Any ambiguity in this Agreement shall be resolved in favor of a meaning that permits the Parties to maintain the confidentiality and security of the Data.

l. Merger Clause. This Agreement constitutes the entire understanding of the Parties and merges all prior discussion, agreements or understandings into it. No prior agreement, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the Parties

m. Severability. If any provision of this Agreement is found by a proper authority to be unenforceable or invalid, such unenforceability or invalidity shall not render this Agreement unenforceable or invalid as a whole and, in such event, such provision shall be changed and interpreted so as to best accomplish the objectives of such unenforceable or invalid provision within the limits of applicable law or applicable court decisions.

n. Supersedes. This Agreement supersedes all prior and contemporaneous agreements and understandings, written or oral, relating to the use of the Data that is the subject matter of this Agreement.

IN WITNESS WHEREOF, the parties by their duly authorized representatives have entered into this Data Confidentiality and Non-Disclosure Agreement as of the Effective Date.

Walden University, LLC

By:

_____

Name: Title:

New York City Health and Hospitals Corporation

By:_____
Name: Machelle Allen, M.D., Chief Medical Officer,
Senior Vice President,

Sean Shivers ("Student")

:

Name: Sean Shivers

LLC

City Corporation

tudent")

Shivers

Appendix E: Food Safety Handout

Four Steps to Food Safety

Food safety – the methods to properly handle, prepare, and store foods in ways that prevent food-borne illness. The occurrence of two or more cases of a similar illnesses resulting from the ingestion of a common food is known as a food-borne disease outbreak. **Follow these basic four steps to ensure your food is safe; *Clean, Separate, Cook, and Chill.***

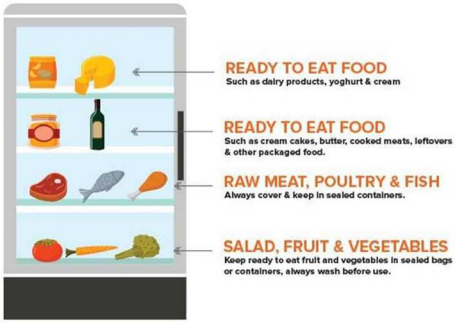
Clean: Wash your hands and surface consistently

Germs that cause food poisoning can survive in many places and spread around your kitchen.
Wash hands for 20 seconds with soap and water before, during, and after preparing food and before eating.
Wash your utensils, cutting boards, and countertops with hot, soapy water.
Rinse fresh fruits and vegetables under running water.

Separate: Don't cross-contaminate

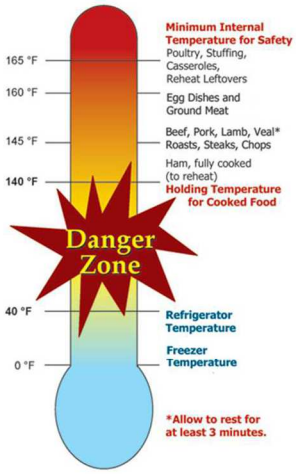
Raw meat, poultry, seafood, and eggs can spread germs to ready-to-eat foods—unless you keep them separate.

- Use separate cutting boards and plates for raw meat, poultry, and seafood.
- Keep raw meat, poultry, seafood, and eggs separate from all other foods in the fridge.



Cook: To the right temperature. TEMPERATURE DANGER ZONE" BETWEEN 40° AND 140° FAHRENHEIT?

Food is safely cooked when the internal temperature gets high enough to kill germs that can make you sick. The only way to tell if food is safely cooked is to use a food thermometer. You can't tell if food is safely cooked by checking its color and texture.



Chill: Refrigerate promptly.

- Bacteria can multiply rapidly if left at room temperature or in the "Danger Zone" between 40°F and 140°F. Never leave perishable food out for more than 2 hours (or 1 hour if it's hotter than 90° F outside).
- Keep your refrigerator below 40°F and "when in doubt, throw out the food."
- Refrigerate perishable food within 2 hours. (If outdoor temperature is above 90°F, refrigerate within 1 hour.)
- Thaw frozen food safely in the refrigerator, in cold water. Never thaw foods on the counter, because bacteria multiply quickly in the parts of the food that reach room temperature. Never thaw foods in the microwave unless you are going to immediately finish the cooking process in the oven or on the stove.

https://www.cdc.gov/foodsafety/keep-food-safe.html