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EFFECTS OF PEDIATRIC FEVER EDUCATION ON CAREGIVERS
IN THE EMERGENCY DEPARTMENT

by

Micah Brooke Thompson

A Doctoral Project
Submitted to the Graduate School,
the College of Nursing and Health Professions
and the School of Leadership and Advanced Nursing Practice
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

Approved by:

Dr. Cathy Hughes, Committee Chair
Dr. LaWanda Baskin, Committee Member

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ABSTRACT

Fever in children is a common concern for parents and one of the most frequent presenting complaints seen in the emergency department (ED). Fever can be defined as a temperature above 100.4 degrees Fahrenheit. Fever is considered a normal response to many conditions, with the most common one being infection (Ward, 2019). The biggest issue seems to be a lack of understanding by the caregivers on how to measure temperature, treat fever, and when to be concerned about temperature reading. Educating caregivers may enhance their self-management and sense of control, reduce healthcare-seeking behavior, and lower antibiotic prescriptions.

The purpose of this evidence-based project was to design and implement a pediatric fever education program to present in the emergency department setting to increase recognition and the use of appropriate antipyretic treatments in the home setting, decrease caregiver anxiety and fever phobia, and improve their satisfaction with the information provided to them during their emergency department visit. The pre-education questionnaire, brochure, post-education questionnaire, and survey were utilized to measure and enhance the caregivers' knowledge by providing them with information explaining the definition of fever, signs, and symptoms of fever, when to call the doctor or go to the emergency room, how to treat the child's fever, how to take the child's temperature, how to use a thermometer, and a brief explanation on febrile seizures. A standard approach to caregiver education regarding pediatric fever is not currently available in this rural emergency department setting.

The education protocol was carried out over a 30-day period with caregivers of pediatric patients ages 6 months-10 years who presented to the emergency department

with a chief complaint of fever. The results of the intervention show overall the caregivers were satisfied and had less anxiety about fever with the information provided via the brochure and reassurance of the DNP student. An executive summary was given to the emergency department medical director and nurse manager of the findings. After the executive summary was provided, the director and manager report future consideration of implementing this protocol in the ED.

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DEDICATION

To my wonderful parents—Thank you for always supporting me and encouraging me in every goal I have set out to accomplish. I am thankful God gave me you as parents, and I appreciate the love and support you have always shown. I love you both very much!

Matt--- Thank you for all the many encouraging words and patience you have demonstrated with me having to dedicate so much of my time to school. I appreciate you so much, and I love you!

God, thank you for all your many blessings and for allowing me to complete this goal.

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LIST OF ABBREVIATIONS

<i>AAP</i>	American Academy of Pediatrics
<i>CDC</i>	Centers for Disease Control and Prevention
<i>DNP</i>	Doctor of Nursing Practice
<i>ED</i>	Emergency Department
<i>IRB</i>	Institutional Review Board
<i>RCR</i>	Retrospective Chart Review
<i>USM</i>	The University of Southern Mississippi

CHAPTER I - INTRODUCTION

Fever in children is a common concern for parents and one of the most frequent triage complaints seen in the emergency department. Fever can be defined as a temperature above 100.4 degrees Fahrenheit. Fever is considered a normal response to many conditions, with the most common one being infection (Ward, 2019). The biggest issue seems to be a lack of understanding by the caregivers on how to measure temperature, treat fever, and when to be concerned about temperature reading. Educating parents may enhance their self-management and sense of control, reduce healthcare-seeking behavior, and lower the expectation of needing an antibiotic prescription.

The purpose of this evidence-based project was to design and implement a pediatric fever education program to present in the emergency department setting to increase recognition and the use of appropriate antipyretic treatments in the home setting, decrease caregiver anxiety and fever phobia, and improve their satisfaction with the information provided to them during their emergency department visit. The brochure and education protocol will enhance the caregivers' knowledge by providing them with information explaining the definition of fever, signs, and symptoms of fever, when to call the doctor or go to the emergency room, how to treat the child's fever, how to take the child's temperature, how to use a thermometer, and a brief explanation on febrile seizures. A standard approach to caregiver education regarding pediatric fever is not currently available in this setting. Based on personal observation as well as available evidence in the literature, there are misconceptions, inappropriate management, overuse of medical services, and unrealistic fears in caregivers related to pediatric fever.

Background

Fever is one of the most common chief complaints in the United States. It is estimated there are 60 million annual pediatric visits for fever (Wallenstein et al., 2012). In 2010, there were over 25.5 million emergency department (ED) visits for children younger than 18 years; the vast majority (96%) of those visits resulted in children being treated and discharged home. Fever was one of the top five reasons pediatric patients were seen in the ED (Wier et al., 2013).

Fever is one of the most frequent reasons pediatric patients are brought to the emergency department by parents and caregivers. Fever is a frequent cause of consultation, mostly because it is a concern for the caregivers. This physiological reaction to infection is often negatively perceived, even though an acute fever typically does not require a medical consultation within the first 48 hours after its occurrence (Chapron et al., 2018). Fear and anxiety attached to fever by most caregivers are often labeled as fever phobia. Since pediatric fever is such a misunderstood symptom, caregivers often take inappropriate actions or fail to act when managing fever.

Caregiver misconceptions due to insufficient knowledge regarding the physiology and appropriate management of fever often lead to increased anxiety, inappropriate antipyretic use, and an overuse of medical resources. Inappropriate antipyretic use can cause toxicity and other adverse effects. There were nearly 10,000 hospitalizations of pediatric patients in the United States annually for medication overdoses, with the highest number being among children ages five years and less (Schillie et al., 2009).

Fever itself is not an illness or condition but rather a sign or symptom. In fact, fever usually is a positive sign the body is fighting infection. Fever stimulates certain

defenses, such as the white blood cells, which attack and destroy invading bacteria. In pediatric patients, fever most commonly is associated with illnesses such as croup, pneumonia, ear infections, influenza, severe colds, and sore throats (American Academy of Pediatrics [AAP], 2016). Even though it is a symptom of a disease, many caregivers focus only on the fever itself. Anxiety tends to run high due to the caregivers feeling the child needs to have a consistent normal temperature, regardless of the reason for the fever.

Significance

The biggest issue lies with the caregivers being knowledge deficient on the topic of pediatric fever. One of the biggest mistakes made is not checking the child's temperature via a thermometer and relying solely on detection by touch. In one study, fever was perceived by parents as hotness of the whole body of the child, and only 14.63% of the caregivers used a thermometer for the detection of fever (Agrawal et al., 2013). The definition of fever is often undefined for the caregiver; therefore, they are unsure about actual values. Most pediatricians consider a temperature of 100.4 degrees Fahrenheit or higher a fever (AAP, 2018). There is no foundation for the proper identification and treatment of fever if the acceptable values for an abnormal temperature are not understood.

Health literacy can have a negative impact on health behaviors when levels are low. Health literacy is the ability of an individual to obtain, communicate, process, and understand basic health information and services so they can make appropriate health decisions (Centers for Disease Control and Prevention [CDC], 2020). Particularly, low fever literacy can contribute to increased caregiver anxiety, fever phobia, and overuse of

antipyretics, such as acetaminophen and ibuprofen. The problems associated with low fever literacy can best be corrected through appropriate measures towards effectively educating caregivers.

Healthcare professionals' management of fever sets an example for caregiver management of fever. Caregivers identify healthcare providers such as doctors, nurse practitioners, and nurses as their primary source of information for the treatment of fever. An ED visit is an opportune time to provide caregiver education by demonstrating appropriate fever management and education, which may lead to a future reduction in non-urgent ED visits.

Problem Statement

In 2010, there were over 25.5 million emergency department (ED) visits for children younger than 18 years; the vast majority (96%) of those visits resulted in children being treated and released. Fever was one of the top five reasons patients were seen in the ED (Wier et al., 2013). Caregiver misconceptions regarding consequences associated with fever and insufficient knowledge related to appropriate management of childhood fever contribute to negative effects such as caregiver fever phobia and unintentional harm due to inaccurate dosing of antipyretics in febrile children.

The literature review revealed, sufficient information to support a correlation between fever phobia and overuse of medical services. Fifty-six percent of caregivers were very worried about the potential harm of fever in their children. Forty-four percent considered a temperature of 102 degrees Fahrenheit to be a high fever, and 7% thought a temperature could rise to greater than or equal to 110 degrees if the fever was left untreated. Ninety-one percent of caregivers believed a fever could cause harmful effects.

Caregivers who stated they were very worried about fever were more likely in the past to have had a child who was evaluated for fever by a healthcare provider, to have had blood work performed on their child during a febrile illness, and to have perceived their healthcare provider to be very worried about fever (Crocetti et al., 2001). Therefore, in order to ensure safe caregiver management of pediatric fever, an effective caregiver education program regarding fever and its proper management is necessary.

PICOT

In caregivers of children ages six months to 10 years, what is the effect of a verbal and written education program in the emergency department on pediatric fever and appropriate management of pediatric fever, compared to standard knowledge, on knowledge level, anxiety, and satisfaction, regarding pediatric fever, over the course of 30 days? This project assessed the knowledge level, anxiety, and satisfaction of the caregivers before and after education material was presented. There was not a protocol in place at the facility at the time of implementation.

Available Knowledge

Fever is a leading cause of nonurgent visits to emergency departments. Of the 24 million pediatric patients younger than 15 years who were seen in an ED in 2011, more than 15% had a chief complaint of fever. The majority of these patients were assigned the least acute triage levels on ED arrival based on the number of anticipated resources needed for their care. Among pediatric patients with these triage levels, fever was the most common chief complaint in pediatric ED patients. A contributor is the misunderstanding of fever as a disease rather than a symptom (Nelson et al., 2018).

There is strong evidence to support that caregiver's associate fever in their children with negative implications. Due to the negative perception of fever, healthcare providers often see unwarranted fever phobia and overuse of healthcare services. As a result of this fear and negative outlook on fever, caregivers may feel inclined to give their children a copious dose of antipyretics in an attempt to more rapidly achieve what they perceive as a normal temperature.

Many of the common misconceptions of fever have been addressed by the American Academy of Pediatrics guidelines for the treatment of fever. The guidelines clearly state that fever is not dangerous and should only be treated in the setting of discomfort, not fever alone (Nelson et al., 2018). This project consists of the implementation and evaluation of a fever education program designed to examine caregiver knowledge, anxiety, satisfaction of education, and utilization of medical services related to fever.

Needs Assessment

The facility is a rural 153-bed facility located in northeastern Mississippi. The hospital services the counties of Pontotoc, Union, Lee, Benton, Marshall, Tippah, Prentiss, and Lafayette counties. The emergency department is comprised of 22 exam rooms and has approximately 30,000 patient visits annually.

In 2020, fever was the number one reason pediatric patients were seen in the emergency department. The researcher reviewed statistics from the facility's emergency department regarding visits of pediatric patients with the chief complaint of fever. The dates under review were October 1, 2019, through October 31, 2020, with the patient's

disposition being discharged home. The emergency department's average number of patients seen during this time was 1,200 patients per month.

The population of Union County in July 2019 was 28,815. 6.6% of the population was comprised of people under five years of age, and 25.1% of the population was 18 years or younger. 81.3% of the population was of white ethnicity, 15.4% African American, and 4.5% Hispanic. The median household income was \$41,287 (U.S. Census Bureau, 2019).

George et al. (2012), analyzed the treatment of non-urgent fever in the ED. The study found patients who presented to the ED with nonurgent fever were more likely to be young, African American and Hispanic compared with the total ED population during the same time. These findings are similar to prior studies which showed younger patients, black, and Hispanic patients are more likely to seek non-urgent care in the ED. In terms of the antipyretic of choice, the majority of the patients received acetaminophen. There was no difference in ED length of stay between those patients who received ibuprofen or acetaminophen (Nelson et al., 2018).

Synthesis of the Evidence

Search Terms

An electronic search of databases was conducted that included Academic Search Premier, CINAHL, Consumer Health Complete- EBSCOhost, and the Medline search engines. Published research was found using the search terms *fever, fever management, fever guidelines, fever treatment, antipyretics, pediatric fever education, pediatric fever, and fever in the emergency department*. Articles that evaluated adult patients, health conditions such as fever in cancer patients, renal transplant patients and rocky mountain

spotted fever were excluded in the search. Filters used included full-text articles, infant (1-23 months), preschool, child (6-12 years), and only including articles that mentioned pediatric fever. A total of 447 articles, from 1992 to 2020, were found and reviewed. The literature synthesis consisted of 42 articles, from 2012 to 2020, that met all the criteria. The American Academy of Pediatrics and the Italian Pediatric Society both have guidelines for fever and antipyretic treatment of children, which were included in this project's review of the literature (AAP, 2018; Chiappini et al., 2012). The American Academy of Pediatrics fever brochure was utilized to create education material for caregivers (AAP, 2018).

Levels of Evidence

The 42 articles were graded using Mosby's Levels of Evidence. Mosby's Levels of Evidence (Figure 1) has seven categories, which increase in strength and reliability as progression is made from the base to the peak of the pyramid. Systematic reviews are the highest level of research and expert opinion is the lowest level of research. Most of the articles involved randomized-controlled trials. The educational brochure from the American Academy of Pediatrics (2018), *Fever and Your Child*, was utilized as the educational supplement for this project in order to enhance and improve the caregivers' understanding of pediatric fever. This educational material is based on information presented from the book, *Caring for Your Baby and Young Child: Birth to Age 5*, written by the American Academy of Pediatrics in 2014.



Figure 1. Mosby's Levels of Evidence

(Mount Carmel Health Sciences Library, 2012)

Definition of Fever

The whole basis of appropriate fever management is dependent on the definition of fever. AAP (2016) suggests that the accepted numerical values for fever only have a slight variation within the healthcare community, while there is a large variation within the parent/caregiver population. The evidence indicates a lack of consistency with the site chosen to measure a fever (e.g., oral, rectal, tympanic, etc.), unspecified versus site-specific values, and an exact fever-defining temperature.

The research shows parents and caregivers are more often incorrect in their understanding of temperature values for what defines a fever. One study found that 100% of the parents and caregivers were incorrect, 81% believed a fever starts when a temperature reading is below 100.4°F, and the other 19% reported that a fever starts at a temperature reading above 100.9°C (Wallenstein et

al., 2012). Infants tend to have higher temperatures than older children, and everyone's temperature is highest between late afternoon and early evening and lowest between midnight and early morning (AAP, 2016).

Ibuprofen and Acetaminophen

If the child is older than six months of age and has a fever, he/she probably does not need to be treated for the fever unless she is uncomfortable. If he/she is drinking, eating, sleeping normally, and is able to play, the caregiver should wait to see if the fever improves by itself. A few tips before treating with medication include keeping the room comfortably cool, make sure the child is dressed in light clothing, encourage the child to drink fluids, and be sure the child does not overexert themselves.

Acetaminophen and ibuprofen are the only antipyretic drugs recommended for use in children, and only when fever is associated with evident discomfort. The research is controversial regarding if monotherapy or dual therapy works best in children. A randomized controlled trial was performed to establish the cost-effectiveness and clinical efficacy of acetaminophen plus ibuprofen compared with acetaminophen or ibuprofen alone in patients without fever. During the first four hours without fever, the use of both agents was superior to the use of acetaminophen alone. With the combined use of both drugs, fever resolved 23 minutes sooner than with acetaminophen alone, but not sooner than with ibuprofen alone. The study also reported the recommended maximum dosage of acetaminophen and ibuprofen in 24 hours was exceeded in 8% and 11% of children. This data suggests the combination of acetaminophen and ibuprofen could be confusing and cause the risk of toxicity (Chiappini et al., 2012).

Dosing

One of the issues discussed in many of the articles is how dosing should be addressed, examining age and weight. Almost all the current research suggests dosing should only be based on weight, not age. However, most packaging still lists age and weight parameters. Weight-based dosing (15mg/kg acetaminophen every four to six hours and 10mg/kg ibuprofen every six to eight hours) is recommended in the pediatric population for all pediatric patients (George et al., 2012). Weight-based dosing needs to be stressed with parents when providing education. Weight-based dosing increases the probability of correct and effective dosing when compared to age-based dosing (Abourbih et al., 2016).

Fever Phobia and Knowledge

Fear and anxiety attached to fever by most caregivers are often labeled fever phobia. Fever phobia is a contributor to the prevalence of fever as a chief complaint in pediatric ED patients and stems from a misunderstanding of fever as a disease rather than a symptom. Parents who are more worried about fever are more likely to have had an experience where they felt the healthcare professional was concerned about the fever or ordered further testing due to the fever (Nelson et al., 2018).

Improving the understanding of caregivers regarding the topic of fever will help eliminate or reduce fever phobia. This fear of potential harm may cause them to react, many times in inappropriate ways. These decisions may be based on incorrect information or the belief that a fever needs to be completely controlled so the best possible outcome for the child can occur. Reducing the parent's anxiety by creating a positive experience tends to improve patient outcomes.

Evidence-Based Practice Model

The model that was used is the ACE Star Model of Knowledge Transformation. The model provided a framework for this project that facilitated an efficient transfer of research into clinical practice. The goal was accomplished by discovering a need for knowledge, summarizing all the relevant evidence-based research, translating it into an education plan, implementing the education plan in the emergency department, and then evaluating the outcomes. See Figure 2 for an example of the model used for this project.

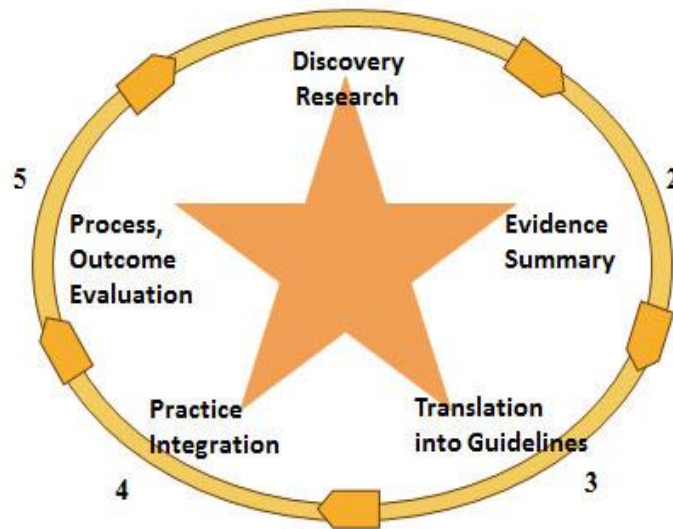


Figure 2. ACE Star Model of EBP: Knowledge Transformation

(Stevens, 2013)

DNP Essentials

All of the doctoral nursing practice essentials were utilized in this project. The top two essentials used were Essential V: Health Care Policy and Ethics and Essential VII: Prevention and Population Health. There was an establishment of a clinical education protocol for pediatric fever. Education and collaboration with caregivers of pediatric patients was provided to decrease anxiety and unnecessary medication use.

Table 1 .

DNP Essentials

<i>Essential</i>	<i>Doctor of Nursing Practice (DNP) Student Activity</i>
I: Scientific Underpinnings for Practice	Synthesis of the evidence and the use of the American Academy of Pediatric guidelines and educational brochure
II: Organizational and Systems Leadership for QI and Economics	Lead role in the development and implementation of the DNP project
III: Evidence-Based Practice/Translation Science	Synthesis of the research and development of the pediatric fever education protocol
IV: Information Systems/Technology	The use of patient records and computer programs to develop, collect, and analyze the data
V: Health Care Policy and Ethics	Establishment of a clinical education protocol for pediatric fever
VI: Inter-professional Collaboration	Collaboration with the health care team members such as doctors, nurse practitioners, and nurses
VII: Prevention and Population Health	Education and collaboration with the parents/caregivers of the pediatric patients to decrease anxiety and unnecessary medication use
VIII: Advanced Nursing Practice and Education	The implementation of a pediatric fever education protocol to update caregivers and staff on current recommendations

(American Association of Colleges of Nursing, 2006)

Goals and Expected Outcomes

The focus of this project was on enhancing the knowledge of caregivers of pediatric patients with fever in order to reduce caregiver anxiety and fever phobia. Another goal was to reduce the unnecessary use of antipyretics in these patients. This goal was measured by questionnaires and surveys completed by caregivers of pediatric patients seen in the ED. A report was developed to evaluate the number of patients administered antipyretics in the ED.

Summary

Pediatric fever is a common complaint seen in the emergency department setting. This chapter discussed the need for caregiver education focused on alleviating parental fear about fever, discrepancies in caregivers' knowledge about the definition and measurement of fever, and recommended antipyretic treatment. This DNP project proposed the use of a pediatric education protocol for caregivers so health care team members in the emergency department could address these issues. The goal was to allow the caregivers to properly recognize and manage fever as well as educate about appropriate fever therapies and common misconceptions concerning fever.

CHAPTER II – METHODOLOGY

The project took existing data elements and compared them to the corresponding data elements collected after the implementation of the protocol. The evidence-based protocol's focus was to address the febrile pediatric child in the emergency department and provide education for the caregivers of the pediatric patients. Before this project, there was not an established education protocol to address these situations at the clinical site.

Population and Sample

The population of the focus of this project was caregivers of pediatric patients six months to ten years of age, who were evaluated in the emergency department for a chief complaint of fever. The caregivers were 18 years of age or older and English speaking. The setting was a rural emergency department in the northeastern portion of Mississippi. The facility is the only emergency department in the county. The emergency department is comprised of 22 exam rooms and has approximately 30,000 patient visits annually. COVID-19 has impacted the census; therefore, the average amount of patients visits has decreased.

Interventions

The synthesis of the evidence focused on the definition of fever, antipyretic treatments, and fever phobia/caregiver knowledge. These topics helped to guide the development of the intervention: a pediatric caregiver education protocol. The intervention focused on improving recognition and appropriate treatment of pediatric fever at home in order to enhance caregiver knowledge, decrease their anxiety, and improve their satisfaction.

Part 1- Retrospective chart review (RCR) to determine the number of children experiencing fever in a 1-year time period at this facility. Children ages 6 months to 10 years of age who were brought to the ED at the facility with a chief complaint of fever from October 1, 2019, to October 31, 2020. The DNP student reviewed the number of pediatric fever cases each month for the above age range for the past year. This data illustrates the number of fever events that prompted caregivers to seek treatment in the ED.

Part 2- The participant population included caregivers of patients ages six months-10 years who present to the emergency department with a complaint of fever over 30 days while the DNP student was present in the ED. The only exclusion was non-English speaking caregivers. The following are the steps that took place during the implementation of the pediatric caregiver education protocol:

- 1) Flyers in each exam room made caregivers aware a new education protocol was being carried out in the ED
- 2) During initial assessment of the patient, verbal and written consent from the caregiver was obtained to participate in the project. (The DNP student is a nurse practitioner in the ED so no additional contact was made with the patients or caregivers other than routine workflow.)
- 3) Once consent was obtained, the pre-education questionnaire questions were asked and the DNP student documented the responses. Verbal administering questionnaires minimized any possible issues with literacy. (See attached Pre-Education Questionnaire)

- 4) The fever education brochure used by the DNP student from the AAP (2018) and other sources were given to the caregiver and explained after the DNP student assessed the patient.
- 5) After testing resulted or during the DNP student's reassessment of the patient, the DNP student asked the caregiver some post-education questions and documented the responses to determine their understanding of the information provided to them. The timing of this depended on whether testing was ordered or if the patient was assessed, education provided, and then discharged. (See attached Post-Education Questionnaire)
- 6) A survey was given to the caregiver in order to determine any additions or changes that need to be considered for improvement of this protocol. The survey was completed prior to the caregiver leaving the emergency department. (See attached Caregiver Feedback Survey)

Measures

A questionnaire, both pre- and post-education, was utilized to evaluate the level of understanding of the pediatric caregiver and whether the education protocol was effective. The nurse practitioner asked the caregiver these questions and recorded the responses upon the initial assessment and after final discharge instructions were presented by the nursing staff. Verbally administering the questionnaires and survey eliminated any issues with literacy and also limited any additional contact. The effectiveness of the education protocol was determined by the feedback scores given on the post-education questionnaire and caregiver responses on the survey. The examples from the questionnaires and survey are located in the appendices.

Analysis

The DNP student, to assure consistency in the collection, was the only individual collecting data from the charts via computer documentation software. The important data elements were identified, recorded, and then organized into an excel spreadsheet. The information gathered from the pre-education, post-education, and survey questions were used to determine the effectiveness of the pediatric fever education protocol and if clinical education needs to be modified. Descriptive statistics were utilized.

The evaluation question for this project was: Will a pediatric fever education protocol help the health care team and caregivers meet the goal of improving the knowledge level, confidence, and anxiety of caregivers on the treatment of fever in non-emergent febrile pediatric patients, ages six months to 10 years, in an emergency department setting, over 30 days?

The data was collected over a 30-day period. The primary outcomes measured were caregiver knowledge of fever, caregiver confidence, and caregiver anxiety towards fever. An additional outcome measured was the scores of the surveys to determine the effectiveness of education protocol. The focus was on the identification of gaps in knowledge, why the gaps are there, and how the gaps can be closed. The results are reported based on trends in descriptive data and content of the feedback from the survey concerning fever education.

Ethical Considerations

This project was approved by the University of Southern Mississippi IRB (IRB-20-501) and the facility's IRB. Both approval letters are located in Appendix D. The following COVID-19 precautions were taken during the implementation of this project:

one researcher per 800 square feet, six feet social distancing, facial coverings, disinfecting surfaces and instruments before and after use, hand washing, or hand sanitizer use. No additional contact was made besides when assessing the patient, reassessing them, or discharging them. The researcher verbally administered the questionnaires and surveys as another method to limit contact.

The ethical considerations of patients were addressed by the de-identification of data. The data was saved on an unmarked file on the DNP student's work laptop, which has password protection that only allows her access. The data collection did not record names or other patient identifiers, so the anonymity of the patient and caregiver has been assured. This project allowed for autonomy by implementing an education protocol for use in the emergency department.

This protocol is evidence-based and provides the health care team and caregivers' appropriate information and material to make decisions about patient care. Nonmaleficence was preserved during this project by using evidence-based material. The project goals focused on assuring appropriate education in the practice setting. The evidence-based interventions minimized the chance that harm accidentally occurred by establishing a protocol and properly educating caregivers. Ethical considerations have been acknowledged and were maintained throughout the duration of the project.

Summary

The focus of this project was to assure consistency and to establish a standard of care when treating a child with fever. The purpose was to implement a pediatric fever education protocol to present to caregivers of pediatric patients ages six months to 10 years. The next chapter will discuss the results found in this project.

CHAPTER III - RESULTS

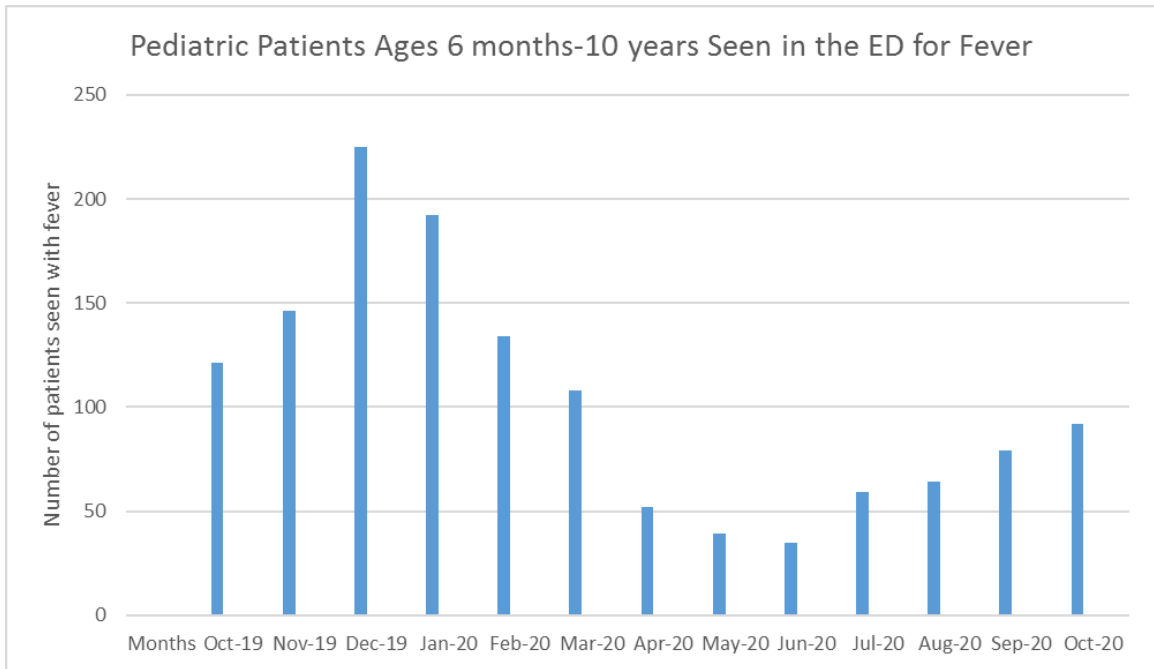
The intervention of a pediatric caregiver education protocol focused on improving recognition and appropriate treatment of pediatric fever at home in order to enhance caregiver knowledge, decrease their anxiety, and improve their satisfaction. The goal was to allow the caregivers to properly recognize and manage fever as well as educate about appropriate fever therapies and common misconceptions concerning fever. Results from the retrospective chart review (RCR), Pre-Education Questionnaire, Post-Education Questionnaire, Caregiver Survey, and Executive Summary to Facility Administration will be discussed in this section.

Results from Retrospective Chart Review

With a retrospective chart review, there were 1,346 total patients ages 6 months-10 years who presented to the emergency department from October 1, 2019, through October 31, 2020, with a chief complaint of fever. The average number of patients was fewer than in previous months due to COVID-19. This emergency department reported a decrease of overall patients from March 2020 to October 2020. May and June 2020 were the lowest months for the above timeframe, with only 39 pediatric patients with fever seen in May and 35 in June. The average length of stay was around 80 minutes. Table 2 displays the number of patients seen each month during this time.

Table 2

Pediatric Patients Seen in ED with Fever



Results from the Pre-Education Questionnaire

During the intervention portion of this project, 28 total caregivers were interviewed after consent was obtained. The DNP student had a 100% participation rate for caregivers who brought the pediatric patients to the ED with a chief complaint of fever. Based on the responses from the questionnaire, it is evident that caregivers seek out care in the ED due to the fear of reason behind or possible effects fever may cause. Almost all of the caregivers believe fever is the main indicator of illness severity. Most caregivers did not check the patient’s temperature or medicate them prior to coming to ED

Table 3

Pre-Education Questionnaire Findings

<i>Questions</i>	<i>Response of "yes"</i>	<i>Response of "no"</i>
Do you believe fever is the main indicator of illness severity?	26 responses	2 responses
Did you check the child's temperature via a thermometer or gauge by touch? I checked by thermometer, did you check it orally, rectally, or axillary?	12 responses 4 oral, 2 rectal, & 6 axillary	16 responses
Did you give the child medication prior to coming to the ER? If so, what medication and dosage did you give?	9 responses 5- Ibuprofen 4- Acetaminophen	19 responses
Do you believe your child having a fever may cause him/her harm?	23 responses	5 responses
Did the fear of what could be causing the fever to make you decide to bring the child to the emergency department?	25 responses	3 responses
Do you believe your child having a fever may cause him/her harm?	18 responses	10 responses
Does your child have a pediatrician?	17 responses	11 responses

Table 4

Post Education Questionnaire Findings

How confident do you feel in selecting a medication product and determining the appropriate dosage of medication for the child?	Do you know when and where to measure the body temperature of the child?	If your child has a fever but otherwise appears normal and comfortable, do you believe it is best to see a healthcare provider?	Do you feel comfortable with treating your child's fever at home based on the information you received today?	How likely are you to follow-up with the child's doctor within the next week?	Do you feel less anxious or less scared of fever after the information you were given today?
Extremely- 2 Very- 18 Moderately-8 Slightly-0 Not at all-0	Yes- 28 No- 0	Definitely-0 Probably-7 Probably not-21	Yes- 24 No-4	Very likely-12 Somewhat likely-9 Not likely-7	Yes- 27 No-1

Results from the Post-Education Questionnaire

Based on the findings of the post-education questionnaire, caregivers felt less anxious about fever. All of the caregivers were confident in knowing when and where to measure the patients' body temperature. Twenty-four out of 28 patients felt comfortable with treating the patients' fever at home based on the education they received. Twenty-seven out of 28 caregivers said they felt less scared or anxious about fever after the education they received.

Results from the Caregiver Survey

The survey findings were positive in that 26 out of 28 caregivers rated the education as easy to understand. The caregivers' level of understanding increased after the education was provided from what they believed it to be from before the ED visit.

The most common age range of caregiver participants was 26-40 years of age.

Table 5

Survey Findings

How would you rate the pediatric fever brochure on how easy it was to understand?		<ul style="list-style-type: none"> ○ Difficult to understand-0 ○ Neutral-2 ○ Easy to understand-26
How would you rate the verbal information given by the nurse practitioner?		<ul style="list-style-type: none"> ○ Poor-0 ○ Fair-0 ○ Good-7 ○ Excellent-21
How would you rate your level of understanding of fever in pediatrics BEFORE the ER visit?		<ul style="list-style-type: none"> ○ Poor-2 ○ Fair-20 ○ Good-5 ○ Excellent-1
How would you rate your level of understanding of fever in pediatrics AFTER the ER visit?		<ul style="list-style-type: none"> ○ Poor-0 ○ Fair-2 ○ Good-15 ○ Excellent-11
Age Range of Caregiver		<ul style="list-style-type: none"> ○ 18-25-6 ○ 26-40- 19 ○ 41-60- 3 ○ 61-72- 0 ○ 72+- 0
Age of Patient		<ul style="list-style-type: none"> ○ 6 months- 2 years- 12 ○ 3 years- 5 years- 7 ○ 6 years- 8 years- 7 ○ 9 years-10 years- 2
Suggestions for Improvement		One caregiver suggested this information being presented at the pediatrician's office; no other suggestions were given.

Observations and Timeframe of Intervention

The caregivers were eager to receive more information on the topic of fever. The majority of the caregivers mentioned they felt most of the information should have been discussed already by the patient's pediatrician. For the ones who did not have a pediatrician and were new parents, the education the DNP student presented was the first time they had heard any information regarding fever besides the little they had learned from family members. The most satisfaction came from the new parents and caregivers of the patients two years of age and younger.

The initial timeframe mentioned for the intervention was either 30 days or 40 participants. Due to the decreased ED census, the DNP student reached 30 days before obtaining 40 participants. Strict time constraints along with the decreased volume led to the DNP student having 28 participants for the research project.

Summary

The education protocol led to decreased caregiver anxiety and fear about fever and an increase in knowledge regarding fever during the DNP student's implementation in the emergency department. The participation rate of caregivers was 100%; however, the decrease in the overall census of the ED made reaching the goal of 40 participants difficult. Therefore, the timeline of 30 days was used instead. The results will be further discussed in the next chapter.

CHAPTER IV - DISCUSSION

Based on the results of the pre-education questionnaire, caregivers were fearful of fever and what could be the potential cause of their loved one having a fever. Twenty- six caregivers out of 28 caregivers believed fever was the main indicator of illness severity. Also, only 12 caregivers checked the patients' temperature with a thermometer to determine whether they had a fever or not. Nineteen out of 28 patients were not medicated for fever before coming to the ED. As shown in Table 3, in the previous chapter, nearly all of the caregivers responded that fear is the reason they brought their loved one to the ED, that they believed fever could cause them harm, and they were fearful of what could be causing the patients' fever.

Another goal was to reduce the unnecessary use of antipyretics in these pediatric patients seen in the ED. Nine of the 28 patients had already been administered medication by the caregiver before coming to the ED. Nineteen patients were not medicated before coming to the ED. Only four out of nineteen patients needed acetaminophen or ibuprofen administered in the ED for treatment of fever.

Key Findings

Table 4 clearly shows positive results from the education provided to the caregivers. Seventy-one percent of the caregivers were more confident in their knowledge of when to treat their loved one for fever and how to give the medication. One hundred percent of the caregivers understood when and where to check the patients' temperature. Based on their responses, the caregivers will be much less likely to seek to see a healthcare provider as soon as the patient starts running a fever, as long as the child is acting normal and appears comfortable. Twenty-four out of 28 caregivers or 86% felt

more comfortable treating the patients' fever at home after receiving the education. The goal of decreasing the caregivers' anxiety regarding fever was reached as 27 out of 28 caregivers or 96% felt less fearful and anxious about fever in their pediatric patient.

The caregiver survey was utilized as another tool to determine the effectiveness of the education protocol and evaluate the most common age groups of patients and caregivers seen during this timeframe in the ED. Twenty-six out of 28 caregivers felt the brochure was easy to understand. Before the ED visit education, two of the caregivers (7%) rated their understanding of fever as poor, 20 caregivers (71%) said fair, five (18%) said good, and 1(4%) said excellent. After the ED visit education, the level of understanding was significantly improved. None of the caregivers said poor. Only two (7%) said fair, 15 (54%) said good, and 11 (39%) said excellent. The most common age group for caregivers who brought their pediatric loved one to the ED for fever was aged 26-40 (68%), and the second most common was 18-25 years of age (21%). Six months of age to two years old was the most common age group of pediatric patients seen in the ED with a chief complaint of fever. Based on the above findings, the desired outcomes of decreasing caregiver anxiety and fear regarding fever and increasing their knowledge and satisfaction were reached.

Strengths and Limitations of the Project

One of the strengths of this project was the high participation rate of caregivers despite an overall decreased ED census. The satisfaction rate and level of understanding of the caregivers were increased, which was one of the goals for this project. Fever phobia with fear and anxiety regarding fever was also reduced amongst the caregivers in

the intervention. One of the limitations was an overall decreased ED census, which leads to having less than the initial desired amount of 40 participants.

Impact of the DNP Project

The findings from this project show how a focused education plan can lead to improved healthcare outcomes among pediatric patients. An increased level of understanding and confidence among caregivers will increase the likelihood that fever will be treated more appropriately in these patients. Decreasing the unnecessary use of antipyretics also aids in reducing medication dosing errors among these patients. Education is so crucial to ensure patients have the best healthcare outcomes.

Implications of Future Practice

This project was an early assessment phase of this clinical problem regarding pediatric fever in the ED. Another area that could be studied is implementing this education in the offices of the local pediatricians. The education plan would likely greatly improve the outcomes of these patients, as education would start at an earlier age and before caregiver fever phobia was induced. All of the local pediatricians' offices close by 5 pm each day, which leads to more ED visits regarding fever after about 4:30 pm each day. Most of the caregivers are unaware they have an on-call provider for each clinic after hours.

Another implication of future practice could include the facility having a phone line dedicated to answering medical questions from callers. The facility currently does not have this service available. A larger hospital, located approximately 30 miles away, offers this service to callers of surrounding counties and utilizes their nursing staff to answer questions and advise the callers on the intervention needed if one is even needed.

This project could be implemented in all the local clinics in order for education to begin at an earlier stage of care of the patient. Beginning education regarding fever sooner, can lead to improved patient outcomes by decreasing the chance of overuse of antipyretics. All of the above mentioned can ultimately lead to decreased ED visits regarding pediatric fever. By decreasing ED visits, the costs to the caregiver and healthcare system are also reduced.

Next Steps and Conclusion

The education project was implemented in a rural emergency department amongst caregivers of pediatric patients ages six months to 10 years of age who presented to the ED with a chief complaint of fever. The DNP student performed a pre-education questionnaire, provided education via a brochure, performed a post-education questionnaire, and finished with a survey prior to the patient being discharged from the ED. In caregivers of children ages six months to 10 years, what is the effect of a verbal and written education program in the emergency department on pediatric fever and appropriate management of pediatric fever, compared to standard knowledge, on knowledge level, anxiety, and satisfaction, regarding pediatric fever, over the course of 30 days? This project shows the intervention performed increased the knowledge level and satisfaction in the caregivers and decreased their anxiety level. The next step would be to introduce this plan to the other healthcare providers in the ED. Another step would be to have the education nurse at the facility reach out to the local pediatricians' offices for training regarding implementation of the pediatric fever education plan.

Summary

In conclusion, the project evaluated the effectiveness of pediatric fever education on caregivers' level of understanding, confidence in managing fever, and decreasing their anxiety. The project shows how focused education can increase the caregivers' confidence and level of understanding regarding fever while also decreasing their anxiety. There are additional items that can be measured in the future including a longer time frame of evaluation of at least 60 days and implementation of the protocol in the local clinics.

APPENDIX A – Pre-Education Questionnaire

1. Do you believe fever is the main indicator of illness severity?
2. Did you check the child's temperature via a thermometer or gauge by touch?
If checked by thermometer, did you check it orally, rectally, or axillary?
3. Did you give the child medication prior to coming to the ER?
4. Do you believe your child having a fever may cause him/her harm?
5. Did the fear of what could be causing the fever make you decide to bring the child to the emergency department?
6. Do you believe your child having a fever may cause him/her harm?
7. Did the fear of what could be causing the fever make you decide to bring the child to the emergency department?
8. Does your child have a pediatrician?

APPENDIX B Post-Education Questionnaire

1. How confident do you feel in selecting a medication product and determining the appropriate dosage of medication for the child?

- Extremely
- Very
- Moderately
- Slightly
- Not at all

2. Do you know when and where to measure the body temperature of the child?

- Yes
- No

3. If your child has a fever, but otherwise appears normal and comfortable, do you believe it is best to see a healthcare provider?

- Definitely
- Probably
- Probably Not

4. Do you feel comfortable with treating your child's fever at home based on the information you received today?

- Yes
- No

5. How likely are you to follow-up with the child's doctor within the next week?

- Very likely
- Somewhat likely
- Not likely

6. Do you feel less anxious or less scared of fever after the information you were given today?

- Yes
- No

APPENDIX C - Caregiver Survey

Pediatric Caregiver Feedback

We would love to hear your thoughts or feedback on how we can improve your experience!

1. How would you rate the pediatric fever brochure on how easy it was to understand?

1. Difficult to understand
2. Neutral
3. Easy to understand

2. How would you rate the verbal information given by the nurse practitioner?

1. Poor
2. Fair
3. Good
4. Excellent

3. How would you rate your level of understanding of fever in pediatrics BEFORE the ER visit?

1. Poor
2. Fair
3. Good
4. Excellent

4. How would you rate your level of understanding of fever in pediatrics AFTER the ER visit?

1. Poor
2. Fair
3. Good
4. Excellent

5. Feedback

6.. Suggestions for improvement

7.. Age Range of Caregiver

18-25

26-40

41-60

61-72

72+

8.. Age of Patient

APPENDIX D – IRB Approval Letters

Office of
Research Integrity



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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.
- Face-to-Face data collection may not commence without prior approval from the Vice President for Research's Office.

PROTOCOL NUMBER: IRB-20-501

PROJECT TITLE: Effects of Pediatric Fever Education on Caregivers in the Emergency Room

SCHOOL/PROGRAM: College of Nursing & Health Pr, School of LANP

RESEARCHER(S): Micah Brooke Thompson, Cathy Hughes

IRB COMMITTEE ACTION: Approved

CATEGORY: Expedited

4. Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications.)

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: December 7, 2020

A handwritten signature in cursive script that reads "Donald Sacco".

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

[REDACTED]

INSTITUTIONAL REVIEW BOARD

[REDACTED], MD Chair
[REDACTED]
PharmD Vice-Chair
[REDACTED]

DATE: January 12, 2021
TO: Robert Pitcock/Micah Thompson
FROM: [REDACTED] IRB

SUBMISSION TYPE: Initial Expedited
PROTOCOL NUMBER: NA
IRB ACTION: **APPROVED**

APPROVAL DATE: January 12, 2021
STUDY STATUS REPORT DUE DATE: January 11, 2022
EXPEDITED REVIEW CATEGOR(IES): 4 & 6

Thank you for your submission for the above-referenced study. The [REDACTED] IRB (FWA#00004299) has APPROVED your submission. Federal approval criteria are met. This approval encompasses the following documents:

- Pre-education questionnaire
- Fever and Your Child brochure
- Pediatric Caregiver Feedback
- Post-Education Questionnaire
- Flyer for room
- Standard Informed Consent

All research must be conducted in accordance with this approved submission. Any changes to the research must be reviewed and approved by the [REDACTED] IRB prior to implementation, except when necessary to eliminate an apparent immediate hazard to the subject, in which case it must be immediately reported.

You are reminded that you must submit a Progress Report for this study before January 11, 2022 to be able to conduct your study in an uninterrupted manner. Please submit this report using the "Progress Report Form" within IRBManager. If you do not receive acknowledgement before this date, you must stop all research activities associated with this study until you receive such acknowledgement unless it is determined that continuing certain activities is in the best interest of subjects. The IRB office will send you reminder notices to help ensure that you submit in sufficient time to avoid a lapse. For additional information on [REDACTED] IRB requirements, including progress report requirements and interim reporting responsibilities, please refer to [\[REDACTED\] HRPP Policies and Procedures](#).

In studies where obtaining informed consent/permission/assent is required, be sure to continue to monitor the subject's willingness to be in the study throughout his/her duration of participation. Only use the current IRB-approved and stamped forms in the consent process. Each subject must receive a copy of his/her signed consent/permission/assent document. Consent forms signed by subjects in this study must be kept by the investigator in accordance with Baptist HRPP Policies and Procedures referenced above.

Unanticipated problems must be reported to this office in accordance with [\[REDACTED\] HRPP Policies and Procedures](#) referenced above.

APPENDIX E – Executive Summary

The implementation of the project took place over 30 days and included 28 participants. The following are the results regarding the post-education questionnaire and the caregiver survey provided to the caregivers before the patient being discharged from the ED. Seventy-one percent of the caregivers were more confident in their knowledge of when to treat their loved one for fever and how to give the medication. One hundred percent of the caregivers understood when and where to check the patients' temperature. Based on their responses, the caregivers will be much less likely to seek to see a healthcare provider as soon as the patient starts running a fever, as long as the child is acting normal and appears comfortable. Twenty-four out of 28 caregivers or 86% felt more comfortable treating the patients' fever at home after receiving the education. The goal of decreasing the caregivers' anxiety regarding fever was reached as 27 out of 28 caregivers or 96% felt less fearful and anxious about fever in their pediatric patient.

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Further suggestions for improvement include introducing this plan to the other healthcare providers in the ED. Another one would be to have the education nurse at the

facility reach out to the local pediatricians' offices for training regarding the education plan.

Thank you for your assistance and support of this project!

Micah Brooke Thompson, ENP-C, FNP-C, DNP Candidate

REFERENCES

- Abourbih, D. A., Gosselin, S., Villeneuve, E., & Kazim, S. (2016). Are recommended doses of acetaminophen effective for children aged 2 to 3 years? A pharmacokinetic modeling answer. *Pediatric Emergency Care, 32*(1), 6-8. <https://doi.org/10.1097/PEC.0000000000001892>.
- Agravwal, R., Bhatia, S., Kaushik, A., & Sharma, C. (2013). Perception of fever and management practices by parents of pediatric patients. *International Journal of Research in Medical Sciences, 1*(4), 397-400. <https://doi.org/10.5455/2320-6012.ijrms20131115>.
- American Academy of Pediatrics (AAP). (2015). *Medications Used to Treat Fever*. <https://www.healthychildren.org/English/health-issues/conditions/fever/Pages/Medications-Used-to-Treat-Fever.aspx>.
- American Academy of Pediatrics (AAP). (2016). *Fever and Your Baby*. <https://www.healthychildren.org/English/health-issues/conditions/fever/Page/Fever-and-Your-Baby.aspx>.
- American Academy of Pediatrics (AAP). (2018). *Fever and Your Child* [Brochure].
- American Association of Colleges of Nursing (AACN). (2006). *DNP Essentials*. <https://www.aacnnursing.org/DNP/DNP-Essentials>.
- Centers for Disease Control and Prevention (CDC). (2020). *What is Health Literacy?* <https://www.cdc.gov/healthliteracy/learn/index.html>.
- Chapron, A., Brochard, M., Rousseau, C., Brujean, M., Fiquet, L., & Gandemer, V. (2018). Parental reassurance concerning a feverish child: determinant factors in

rural general practice. *BMC Family Practice*, 19(7), 1-6. <https://doi.org/10.1186/s12875-017-0686-1>.

Chiappini, E., Venturini, E., Principi, N. Longhi, R., Tovo, P., Becherucci, P., Bonsignori, F., Esposito, S., Festini, F., & Galli, L. (2012). *Update of the 2009 Italian Pediatric Society Guidelines About Management of Fever in Children. Clinical Therapeutics*, 34(7), 1648-1650.

<https://doi.org/10.1016/j.clinthera.2012.06.011>

Crocetti M., Moghbeli N., & Serwint J. (2001). Fever phobia revisited: have parental misconceptions about fever changed in 20 years? *Pediatrics*, 107(6), 1241-1246. <https://doi.org/10.1542/peds.107.6.1241>

George, M., Phelps, M. A., & Kitzmiller, J. P. (2012). Acetaminophen pediatric dose selection caregiver satisfaction regarding the antipyretic efficacy of acetaminophen in children. *Clinical Pediatrics*, 51(11), 1030-1031. <https://doi.org/10.1177/0009922812456592>.

Mount Carmel Health Sciences Library. *Evidence-Based Practice Workshop: Accessing the Literature with e- Searcher*. <https://library.mchs.com/images/pdf/workshops/EvidenceBasedPracticeWorkshop-eSearcher.pdf>

Nelson, C., Ostapenko, S., Zorc, J., & Balamuth, F. (2018). Utilization of Antipyretics for Nonurgent Fever in a Pediatric Emergency Department. *Clinical Pediatrics*, 56(6), 722-726. <https://doi.org/10.1177/0009922817734356>.

Schillie, S., Shehab, N., Thomas, K., & Budnitz, D. (2009). Medication Overdoses Leading to Emergency Department Visits Among Children. *American Journal of*

Preventative Medicine, 37(3), 181-187.

<https://doi.org/10.1016/j.amepre.2009.05.018>

Stevens, K. (2013). The Impact of Evidence-Based Practice in Nursing and the Next Big Ideas. *The Online Journal of Issues in Nursing*, 18(2),4.

<http://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-18-2013/No2-May-2013/Impact-of-Evidence-Based-Practice.html>

U.S. Census Bureau. (2019). Quickfacts: Union County, Mississippi.

<https://www.census.gov/quickfacts/unioncountymississippi>.

Wallenstein, M. B., Schroeder, A. R., Hole, M.K., Ryan, C., Fijalkowski, N., Alvarez, E., & Carmichael, S.L. (2012). Fever literacy and fever phobia. *Clinical Pediatrics*,

52(3), 254-259. <https://doi.org/10.1177/0009922812472252>

Ward, M. (2019). Patient Education: Fever in Children (Beyond the Basics). *UpToDate*.

<https://www.uptodate.com/contents/fever-in-children-beyond-the-basics>.

Wier, L., Yu, H., Owens, P., & Washington, R. (2013). *Overview of Children in the Emergency Department, 2010. Agency for Healthcare Research and Quality*.

<https://www.hcup-us.ahrq.gov/reports/statbriefs/sb157.pdf>.