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Video Education on Fever to Empower and Educate Caregivers

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Video Education on Fever to Empower and Educate Caregivers

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NURS 5382: Capstone

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I would to thank all the educators at the University of Texas at Tyler for their guidance during the last two years. Most importantly, I would like to acknowledge and thank my husband for always believing in me and taking care of the kids so I could focus on my education.

Executive Summary

Nursing research and evidence-based practice are an essential part of the nursing profession. This paper includes discussion of the evidence to support an evidence-based benchmark project using a video to educate caregivers on how to care for a child experiencing a fever and an overview of the proposed project process. Fever has been shown to cause parental anxiety, and caregivers tend to seek medical help due to lack of education on how to care for a child with a fever (Bertille et al., 2018; Gunduz et al., 2016). The following PICOT question is the foundation of the proposed benchmark project: in parents of children seen in a pediatric emergency room with a chief complaint of fever (P), how does parental education using a video on management of fever in children (I) compared to no video education about fever management (C) affect parent's knowledge of fever and its management (O) over 3 months (T)?

This benchmark project looks at the use of a five-minute educational video on fever and its management to supplement standard verbal and written instructions given at discharge. The goal of the project is to increase knowledge on how to care for children experiencing a febrile illness. Increased knowledge will be determined by looking at pretest and post test scores between the groups. By increasing knowledge, we can decrease parental fear and anxiety related to fevers which has the potential to decrease unnecessary hospital visits in the future.

Rationale for the Project

Fever is a common pediatric illness that all children will experience at some point during their growth and development. Schmitt (1980) first described fever phobia as an over exaggerated fear of fever. Pediatric medicine has experienced many advances in science and technology since the time of Schmitt's research; however, the fear of fever still exists among parents. Crocetti et al. (2001) found that 91% of parents still feared fever and thought fever could

potentially cause harm by initiating seizure activity, brain damage, and possible death. Hiller et al. (2019) found that parents' negative perceptions of fever and lack of knowledge on fever in children are still prevalent.

Although fever is a natural response in the body, many parents seek medical attention for their febrile children, which accounts for 20% of all visits to the emergency room; for 82% of those children, coming to the ER was not necessary because their fevers could have been managed at home (Arias et al., 2019). According to research done by the UnitedHealth Group (2019), two thirds of all emergency room visits were considered avoidable and could have been treated in a primary care setting. On average, the cost of going to the emergency room is twelve times more than seeing a primary care physician (UnitedHealth Group, 2019). Using a video to educate parents on fever and how to care for a child experiencing a fever has the potential to decrease unnecessary trips to the emergency room which can decrease overall healthcare costs in the United States.

Literature Synthesis.

The focus of this evidence-based benchmark project is the use of a video to enhance discharge instructions and improve caregivers' knowledge and management of children experiencing fever. The goal of the project is to empower caregivers and give them the necessary education on how to care for febrile children at home.

Many researchers have used random control trials to determine if using a video as an adjunct to verbal and written instructions improved caregivers' comprehension of discharge instructions after visiting an emergency room (Atezma et al., 2013; Bloch & Bloch, 2013; Ismail et al., 2015; Wilkin, 2020). The researchers in all four studies discovered increased caregiver comprehension when a video was used as an educational intervention along with standard verbal

and written instructions. Atezma et al. (2013) used three standardized questions to assess knowledge of discharge instructions and found that the video intervention group scored 3.5 times higher when compared to the control group which only received standard discharge instructions. Bloch and Bloch (2013) used a follow-up questionnaire to assess the knowledge of caregivers after discharge and found that parents with a child experiencing fever who viewed an educational video scored higher than the control group at discharge and follow up. Ismail et al. (2015) and Wilkin (2020) found that the intervention group participants who viewed a video in addition to standard discharge instruction had a higher percentage of correct answers on a questionnaire when compared to the control group. Wood et al. (2017) conducted an evidence-based practice project where an educational video was added to standard discharge instructions. The project found similar positive results of increased comprehension of discharge instructions when a video was used.

Other educational interventions have also been shown to increase parental knowledge of fever. Alquah et al. (2014) reviewed the literature to determine the best methods to teach parents about fever and fever management in children. They concluded that using simplified language and pictures were best to reach all levels of literacy and that the use of a brochure and DVD were the best ways to educate parents about fever management. In a randomized controlled trial, Kelly et al. (2019) sought to determine if providing parents with an informational leaflet about pediatric fever management improved parental knowledge and management practices regarding fever. The researchers found that the educational leaflet was shown to increase parental understanding of fever in children.

The use of educational videos to improve caregivers' knowledge has also been linked to improved patient satisfaction. Atzema et al. (2013) found that patient satisfaction is strongly

correlated with the quality of discharge instructions received; therefore, improving discharge instructions can increase patient satisfaction. Bloch and Bloch (2013) determined that caregivers were more satisfied with video education when compared with written instructions alone.

Project Stakeholders

In order to elicit a change, the project stakeholders need to buy into the project. The main stakeholders in this evidence-based benchmark project are parents/caregivers of children. An assessment of the parent/caregivers' values must be performed in order to determine their willingness to change. Understanding what fuels the fear of fever among caregivers is also important to determine how best to educate. Thompson et al. (2019) synthesized current evidence and experiences of parents/caregivers related to managing pediatric fevers and discovered that parents often overestimate the risks associated with fever. Parents seek knowledge about how to care for febrile children at home and want to know when to seek care from a medical professional.

The project stakeholders also include all levels of the hospital staff. Upper-level management such as hospital administration and mid-level management such as nurse managers should be involved in the project. Having a transformational nurse manager will aid in the development of a change culture that will allow the evidence-based benchmark project to occur (Gallagher-Ford et al., 2019). The hospital administration are stakeholders in this project because it has the potential to decrease unnecessary trips to the emergency department which can decrease overall healthcare cost. By decreasing unnecessary trips to the emergency department, the project has the potential to decrease wait times in the emergency room which can increase patient satisfaction.

Lastly, the staff nurses, physicians, and the registration staff are stakeholders because the project directly affects their workflow. It is essential to have everyone on the healthcare team on board for the proposed change. Having a team approach to the project will allow for the change to take place smoother and will allow the team to support each other throughout the proposed change.

Implementation Plan

In order to implement this evidence-based project support from both upper level and mid-level management is needed. The nurse manager will be an instrumental figure who can support and be an ally to the project. Upper-level management will give approval for the project to occur and can help with acquiring resources such as laptops and/or tablets to play the educational video. Once the project is supported by management, the next step is to develop project guidelines and elect a team leader for the project. The length of the project will be a total of twenty weeks and will be discussed in detail under the timetable/flowchart section. Standardized discharge instructions as well as a pretest and posttest on fever and fever management in children will be created prior to the go live date of the project. The pretest and post test scores will be used to evaluate the effectiveness of the video education compared to standard discharge instructions.

Education and preparation of staff members on the project is essential for the project to take place. Education of staff will be done by the project leader using a PowerPoint. The education will take place at a designated time across all shifts. Educational sessions will be done multiple times to ensure everyone is able to attend. Anyone who is unable to attend will be individually educated by the project leader.

A standardized protocol is needed in order for all staff to understand how the project will function. During the first four weeks of the go live date of the project, the registration staff will notify the medical staff whenever someone signs into the emergency room with a chief complaint of fever. The nurses will then ask the parent/caregiver if they would consent to be in the evidence-based study. If the parent agrees, at discharge the parent will be given a pretest on their knowledge on fever and its management then given standard discharge instructions which will include verbal and written instructions. The parent is then asked to complete a post test after receiving the standard discharge instructions. After the first four weeks are complete, the flow of the project and caregiver recruitment will remain the same; however, at discharge the parent will be given the pretest, given standard discharge instructions with an additional five-minute video on fever and its management then given the post test.

Timetable/Flowchart

The first 4 weeks will be for data collection and selecting team members for the project. The support of the nurse manager will be a key part of the evidence-based project and will assist the project leader in motivating the healthcare team. Permission will need to be granted from the hospital system and the Institutional Review Board during this time period.

Proper education for all staff members is essential before implementation; therefore, the next four weeks will allow for training of all staff members on the evidence-based benchmark project. During this phase of the project, resources such as laptops/tablets to play the discharge video will be gathered. Education material will be selected along with the development of a pretest and posttest to discern caregiver/parental knowledge.

For the next 8 weeks, any parent registering their child with a chief complaint of fever will be asked to participate in the benchmark project. For four weeks, participants will complete

the pretest, receive standard verbal and written discharge instructions, and then complete a posttest. During the next four weeks, the participants will take the pretest, receive video discharge instructions in addition to standard discharge instructions, and then complete the posttest.

The last four weeks of the project will be for evaluation and analysis. Both positive and negative feedback from everyone involved in the project will be collected at this time. The findings of the project will be collected and presented to the hospital administration. Refer to Appendix B for more details regarding the projected timetable.

Data Collection Methods

The outcome of this project is to increase parents/caregiver's knowledge on caring for children experiencing a fever. In order to determine increased knowledge, the scores on the pretest and posttest will be compared between the groups. The pretest and posttest consist of the same questions; eight true and false and one question to select all that apply. Demographic information such as age, sex, and education level will also be collected for comparison. Incidence rates of pediatric fever coming to the emergency department will also be collected. Data on patient satisfaction can also be collected using a Likert scale on the provided discharge education.

Cost/Benefit Discussion

Cost expenditures include resources such as a computer, laptop, or tablet in order to play the educational video. Compensation for all staff for training will also be a factor in the cost of the project. Permission to use the five-minute video in the project will need to be obtained from the creator. The ongoing cost for this project after implementation revolves around use of

internet and maintenance of the computer, laptop, or tablet. Time is also a factor in the project and having the appropriate time to dedicate in a busy emergency room may be a challenge.

According to the UnitedHealth Group (2019) 18 million visits to the emergency room were considered avoidable and if the patient was treated at the primary care, they could save \$1800 per visit. Avoiding the ER for non-emergent problems has the potential to save 32 billion dollars. The benefits of this project with the potential to decrease overall healthcare cost outweigh the risks and cost associated with the project.

Discussion of Results

This project was unable to be implemented at this time due to the Coronavirus pandemic. The pandemic has greatly shifted how people utilize the emergency department with many people opting to avoid going if possible. Mask mandates have also greatly decreased viruses and therefore fevers among the pediatric population have decreased. When this project is able to be implemented the results will most likely show an increase in knowledge when a video is added to standard written and verbal discharge instructions. This hypothesis is based on multiple studies presented in the literature review section. Education is a powerful tool that can be used to empower parents and caregivers to care for children experiencing a febrile illness.

Conclusions/Recommendations

The evidence-based benchmark project is needed to properly educate parents on pediatric fever management. Failure to comprehend discharge instructions and diagnosis can lead to unnecessary return visits to the emergency room (Ismail et al., 2015). Educating parents on how to properly manage pediatric fever can help to decrease healthcare costs. "Fever education programs are the best way to increase parent confidence, reduce their concerns for any future fever episode, and support appropriate use of health care service" (Alqudah, 2014, p.53).

The evidence-based benchmark project can be successful with proper planning, effective nurse managers, and motivated team members. Implementation will take place, and the outcomes of the project will be examined. The evidence-based benchmark project will allow parents to be properly educated and empower them to care for children experiencing fever.

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Appendix A

Synthesis Table

Article Citation	Framework	Design/ Method/Purpose	Sample/ Setting/	Major Variables or Phenomena	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence
Alqudah et al. (2014). An innovative fever management education program for parents, caregivers, and emergency nurses.	N/A	Program development report	Setting: Sydney, Australia No sample	Six Step to develop Program	Fry Simple Measure of Gobbledygook Flesch-Kincaid Suitability Assessment of Materials	Searched databases Cochrane Library, Google Scholar, OVID, Science Direct, and Scopus.	Developed steps in developing fever education programs for parents with varying health literacy. Simple language paired with simple instructions	<u>For each of the following, bullet or number items (no complete sentences):</u> 1.Strengths: Good description of development of evidence-based education program for parents/caregivers of children with fever

<p>Atzema et al. (2013). Speak fast, use jargon, and don't repeat yourself: a randomized trial assessing the effectiveness of online videos to supplement emergency department discharge instructions</p>	<p>N/A</p>	<p>RCT</p>	<p>ED in Ontario, Canada 133 patients with one of 38 diagnoses 58 intervention group 75 in control group</p>	<p>DV- standard discharge instructions IV- video discharge instructions</p>	<p>three standardized questions about their discharge instructions</p>	<p>t test mean Kruskal-Wallis Regression modeling Interquartile range</p>	<p>Patients in the video group had 19% higher mean scores than patients in the control group ($p = 0.002$). After controlling statistically for patient demographic characteristics, the odds of achieving a fully correct score (3 out of 3) were 3.5 (95% CI, 1.7 to 7.2) times higher in the video group, compared to the control group</p>	<p>1.Strengths: valid and reliable instruments used to measure variables 2. Limitations: Study not in pediatrics, more in control than intervention 3. Risk of harm: Low 4. Level of evidence: Level II 5. Strength of the evidence: a. medium b. USPSTF grade: B 6. Feasibility of use of the evidence in your practice: Yes</p>
<p>Bertille et al. (2018). Symptomatic</p>	<p>N/A</p>	<p>Meta-Analysis</p>	<p>62 included articles</p>	<p>DV- management of fever</p>	<p>None</p>	<p>Mean frequencies Linear regression</p>	<p>Statistically significant changes over time</p>	<p>1.Strengths: Systematic Review. High</p>

<p>management of febrile illnesses in children: A systematic review and meta-analysis of parents' knowledge and behaviors and their evolution over time.</p>				<p>IV- parent knowledge and behavior over time</p>		<p>Methodological heterogeneity Confidence Interval</p>	<ul style="list-style-type: none"> • Use of rectal temp (98 to 4%) and axillary temp (1-19%) measurements • Encouraging fluid intake (19-62%) • Use of acetylsalicylic acid (60 to 1%) <p>Not statistically significant change</p> <ul style="list-style-type: none"> • Accurate definition of fever (38-55%) • Use of acetaminophen (91-92%) or ibuprofen (20-43%) <p>Parents knowledge and behaviors changed over time but show</p>	<p>level of evidence 2. Limitations: Excluded studies with <50 participants and studies before 1980. 3. Risk of harm: None 4. Level of evidence: Level 1 5. Strength of the evidence: a. High b. USPSTF grade: A 6. Feasibility of use of the evidence in your practice: Yes</p>
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							poor concordance with recommendations	
Gunduz, S. et al. (2016). Why fever phobia is still common?	N/A	Descriptive Study	861 mothers of children aged 3 months-15 years with chief complaint of fever <ul style="list-style-type: none"> • 408 from private hospital • 251 from specialized pediatric teaching hospital • 202 from government hospital 	DV- Fever IV- Parental knowledge, attitudes, and fears	questionnaire	Kolmogorov-Smirnov Test Mann-Whitney U test p value Median	<ul style="list-style-type: none"> • 60% (n=520) used thermometer at home to measure the temperature <ul style="list-style-type: none"> - 76% (n=650) knew how to correctly measure a temperature • 70% (n=600) had thermometer at home. 91.5% had digital thermometer • 70% preferred to take axillary temp • 91.8% reported range of symptoms that accompanied fever 	<ol style="list-style-type: none"> 1. Strengths: Outcomes cleared described 2. Limitations: small sample size, MD gave questionnaire which could influence responses 3. Risk of harm: None 4. Level of evidence: Level V 5. Strength of the evidence: <ol style="list-style-type: none"> a. medium b. medium 6. Feasibility of use of the evidence in

							<ul style="list-style-type: none"> • 6.7% were given antibiotics • 92.2% gave antipyrics at home <ul style="list-style-type: none"> - 75% used appropriate antipytric doses, 21.4% used less than the required amount • 60% believe seizures would occur if temp was left untreated • Higher educated mothers had more anxiety, mother who only had one child were more anxious 	your practice: Yes
Hiller et al, (2019). A survey about fever	N/A	Descriptive Study	214 questionnaires from 4 sites	DV- fever IV- knowledge ,	questionnaires	Mann-Whitney U test Chi square	96.1% felt they knew how to proceed in the case of fever	1.Strengths: Outcomes cleared described

<p>knowledge, attitudes, and practices among parents.</p>			<p>-17 excluded due to incomplete data 197 usable records</p>	<p>perceptions, attitudes</p>		<p>Yates correction test</p>	<p>98.4% would use a thermometer - 41.2% axillary - 36.4% oral - 23.6% temporal - 19.1% tympanic - 10.9% rectal</p> <p>94.9% would use medication to treat fever - 18.4% acetaminophen - 18.4% ibuprofen - 57.1% alternate both - 27.2% physical measures</p> <p>When to seek care</p> <ul style="list-style-type: none"> • 63.6% duration of fever • 38.0% level of fever • 26.2% other symptoms • 13.4% refractory fever • 4.8% always 	<p>2. Limitations: survey was anonymous and answers could not be verified for accuracy 3. Risk of harm: None 4. Level of evidence: Level V 5. Strength of the evidence: a. medium b. USPSTF grade: B 6. Feasibility of use of the evidence in your practice: Yes</p>
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							<p>Perceptions</p> <ul style="list-style-type: none"> • 61.8% no benefit to fever • 59.9% risk to have fever - 26.5% brain damage - 26.5% seizures - 14.7% dehydration - 11.8% worsening illness - 8.8% overheating <p>Education</p> <ul style="list-style-type: none"> - 70.8% discussed fever with PCP but 48.9% only did so after their child had a fever. - Half verbal education and half written education 	
Ismail et al. (2016). Impact of video	N/A	RCT	Pediatric ED in Jacksonville, FL	DV-standard discharge	Post test	Fisher's Exact Test Medians	In the group of caregivers of children with fever the caregivers who	1.Strengths: valid and reliable

discharge instructions for pediatric fever and closed head injury from the emergency department			71 approached 7 refused 1 incomplete 63 for analysis 31-fever 32-head injury 2 weeks follow up 56 contacted	instructions IV- video and standard discharge instructions		Wilcoxon Rank Sum Test Spearman correlations <i>p</i> values Standard deviations	viewed the video instructions had higher percentage of correct answers (Mdn = 88.89) compared with the caregivers of children with fever in the control group who only received verbal and written instructions (Mdn = 72.22; <i>p</i> = 0.001).	instruments used to measure variables 2. Limitations: conducted over brief time period with small sample size 3. Risk of harm: Low 4. Level of evidence: Level II 5. Strength of the evidence: a. medium b. USPSTF grade: B 6. Feasibility of use of the evidence in your practice: Yes
Kelly et al. (2019) Randomized controlled trial of an intervention to improve	N/A	RCT	elected GP practices, urgent and emergency care treatment centers, and pharmacies	DV- correct definition of fever IV- information leaflet	Questionnaire	Mean Standard deviation Chi-square <i>p</i> values odds ratios confidence intervals	76% of intervention group correctly identified fever compared to 28% of control arm 2 weeks later	1.Strengths: valid and reliable instruments used to measure variables

parental knowledge and management practices of fever.			<p>in Cork, Ireland</p> <p>120 people approached</p> <p>100 participants</p> <p>- 50 intervention (34 followed up)</p> <p>- 50 control (39 followed up)</p>				<p>6% more in intervention</p> <p>2.8% increase in control</p> <p>Parents in the intervention group were more likely to correctly identified temperature at which fever is present as being "higher than $\geq 38^{\circ}\text{C}$" at both T1, immediately after reading leaflet, and T2, two weeks after the intervention (T1: OR 8.1; CI 95% 3.3–19.9, $p < 0.01$; T2: OR 10.5; CI 95% 3.4–32.0, $p < 0.01$).</p>	<p>2. Limitations: smaller sample size</p> <p>3. Risk of harm: Low</p> <p>4. Level of evidence: Level II</p> <p>5. Strength of the evidence: medium</p> <p>b. USPSTF grade: B</p> <p>6. Feasibility of use of the evidence in your practice: Yes</p>
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<p>Thompson et al. (2020), Parents' experiences and information needs related to childhood fever: A systematic review.</p>	<p>N/A</p>	<p>Systematic Review</p>	<p>36 studies</p> <ul style="list-style-type: none"> • 29 quantitative • 7 qualitative 	<p>Narrative synthesis framework</p>	<p>None</p>	<p>Effective Public Health Practice Project (EPHPP) Quality Assessment tool- Quantitate</p> <p>Critical Appraisal Skills Programme (CASP) Qualitative research checklist- Qualitative studies</p>	<p>Quant Themes</p> <ol style="list-style-type: none"> 1. Caregivers want info- fever 2. Low knowledg e s coupled with misconcep tions and anxiety 3. Varying practices on managem ent of fever 4. Demograp hic factors influence informatio n needs and health practices <p>Qual Themes</p> <ol style="list-style-type: none"> 1. Tension between logic and emotion 2. Responsibility contrasted 	<p>For each of the following, bullet or number items (no complete sentences):</p> <ol style="list-style-type: none"> 1. Strengths: Systematic Review. High level evidence 2. Limitations: More quanative studies than qualitative 3. Risk of harm: None 4. Level of evidence: Level 1 5. Strength of the evidence: <ol style="list-style-type: none"> a. High b. USPSTF grade: A 6. Feasibility of use of the evidence in
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								with sense of vulnerability 3. Seeking support and information to build confidence	your practice: Yes
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Wilkin et al. (2020) Effects of Video Discharge Instructions on Patient Understanding	N/A	RCT	60 subject 30 control (standard instructions) 30 intervention (video in addition to standard)	IV: video instructions in addition to standard DV: standard instructions	Discharge knowledge score (DKS)	Mean t test p-value wilcoxon rank sum test	Significant different between groups with intervention video group with increased knowledge	1.Strengths: valid and reliable instruments used to measure variables 2. Limitations: small sample size 3. Risk of harm: Low 4. Level of evidence: Level II 5. Strength of the evidence: a. medium b. USPSTF grade: B 6. Feasibility of use of the evidence in your practice: Yes
Wood et al. (2017). Evidence-based practice: Video-discharge instructions in the pediatric	N/A	EBP Project	Pediatric ED in Virginia 42- SDI 41- VDI	IV- Video discharge instructions (VDI) DV- Standard	Questionnaires Likert-scales	Mean Median Interquartile range Wilcoxon signed rank test	VDI group achieved significantly higher scores on the posttest	1.Strengths: clearly defined outcomes 2. Limitations: small sample size and low level of evidence 3. Risk of harm: low 4. Level of evidence: Level VII

emergency department			13 gastro (4 SDI, 9 VDI) 62 fever (33 SDI, 29 VDI) 8 bronch (5 SDI, 3 VDI)	Discharge Instructions (SDI)			survey than the SDI group Caregivers of children with fever demonstrated significantly greater knowledge after receiving VDI compared to SDI (84% VDI vs 70% standard, $p < .001$).	5. Strength of the evidence: a. moderate to low due to level of evidence b. USPSTF grade: B 6. Feasibility of use of the evidence in your practice: Yes
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Legend:

IV- independent variable

DV- dependent variable

VDI- video discharge instructions

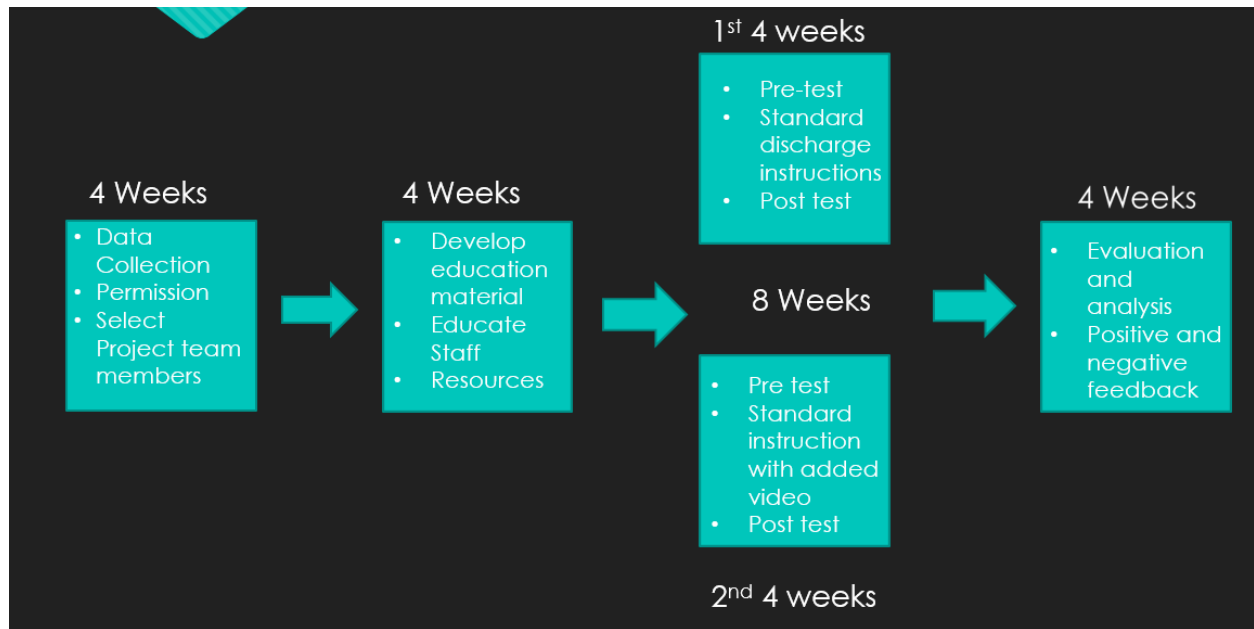
SDI- standard discharge instructions

Gastro- gastroenteritis

Bronch- bronchiolitis

Appendix B

Flowchart



Appendix C

[Fever in Kids: When to Call the Doctor](#)

(The Children's Hospital of Philadelphia, 2018)

APPENDIX A: FEVER PRE-TEST and POST-TEST

1. Fever is the body's normal response to infections.
True False
2. The height of the fever does not relate to the seriousness of the illness.
True False
3. Clothing should be kept to a minimum because most heat is lost through the skin.
True False
4. Bundling your child can cause a higher fever.
True False
5. Only children over 6 months of age can be given any one of the ibuprofen (such as Motrin) products.
True False
6. Fever is helping your child fight the infection.
True False
7. If you choose to sponge bathe your child, you should add rubbing alcohol to the water.
True False
8. You should give aspirin to your child to reduce fever.
True False
9. In this question, please circle all answers that you believe are correct: Which of the following is a reason to return to the emergency department or call your doctor?
 - a) If your child is under 3 months of age and has a rectal temperature of 100.4 or greater.
 - b) Your child's temperature reaches 105F.
 - c) If your child is on solid foods and will not eat them.
 - d) Your child has a dry mouth, cracked lips, or cries without tears.
 - e) Your baby has not had a wet diaper in at least 8 hours.
 - f) If your child is throwing a tantrum.
 - g) Your child is less alert, less active, or is acting differently than she/he usually does
 - h) Your child has a seizure or has abnormal movements of the face, arms, or legs.
 - i) Your child is drooling and not able to swallow
 - j) Your child has stiffness of the neck, confusion, or will not wake up.

(Ismail et al., 2015)