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Spreading the News About Peanuts: Implementing an Infant Allergy Risk Assessment

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DOCTOR OF NURSING PRACTICE PORTFOLIO

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Table of Contents

Acknowledgements

Today I am a Doctor of Nursing Practice (Yay!). I would not be able to say or have accomplished this achievement without those who have supported me throughout my tenure at University of San Diego. I am grateful for the individual ways each one of you have stood by me and encouraged me.

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JoAnn and to all at Jacobson Pediatrics. Thank you for making my project possible. You all were so welcoming from my first day of clinical and I am happy to have had my experience at a clinic with great cohesiveness among staff. JoAnn, I have never grown so much professionally as I have working with you. Your mentorship has truly been the best. You find the positive in every situation and have been there to always motivate me when I needed it, because of you I will always remind myself to live life at 100%.

Mom and Dad, I am forever thankful to have grown up with two successful, hard-working parents. The many positive experiences I have had would not have happened without you two always there to give advice when I am at a crossroad. You have provided me with the ability to be able to choose where I want to be and have shaped me into the person I am today. I aspire to be able to do the same as you have done for me. Also to my Brother, your work ethic inspires me. I hope on my new path as a DNP that I can go above and beyond for others the way I see you do each day. I love you all unconditionally.

Most of all, to my Vincent. I may say that I met you right before the most hectic years of my life; but when I think back to us meeting I know you came into my life at the perfect time. Through all of the long stretches of work, class, and clinical, you never once complained. Thank you for being my instant hype-man and always making sure there is a meal at home waiting for me. I am proud to be yours and I am so excited for the future with you always by my side. "We believe in each other, that's enough for me."

Opening Statement: Purpose in Pursuing the DNP

Since finishing my nursing degree I have had many wonderful opportunities and experiences functioning as a bedside nurse. Working in the Neonatal Intensive Care Unit (NICU) has created a foundation in my nursing career for which I will forever be thankful. I have known that I always wanted to advance my knowledge and clinical skills to the terminal practice degree in nursing; the Doctor of Nursing Practice (DNP). The decision to move from Chicago to San Diego created a complete transition for myself professionally. The time I spent before beginning my program at University of San Diego allowed me to flourish and expand my understanding of the neonatal and pediatric populations as well as comprehend how different health care systems operate. Here now I begin to further delve into my program towards becoming a DNP and for that I am beyond excited to see what my future will bring.

My passion for the high-risk infant population has created a desire to help this patient population post-hospital stay through health prevention and promotion. My current NICU background has influenced my interest into working with these infants as well as other specialty pediatric clinics upon finishing my degree. I plan to continue to be an advocate and educator for patients and families, now at a higher level of care as a DNP. My professional goal is to provide the best quality of life possible for children who may have had setbacks in their health and to help them reach their highest abilities. In addition to a foundation of pediatric primary care knowledge, I am open to

gain a variety of specialty care experiences in hopes to discover a new ambition in nursing that has not previously presented itself. I am eager to grow into a new role as a DNP and to learn more about myself along the way.

The underpinnings of the Family/Pediatric DNP degree will provide an education across the lifespan that will be beneficial to the rest of my professional practice. It is a rewarding feeling to be a part of a new shift in nursing. Achieving a doctoral degree will allow me to show both the value of the DNP as well as the great potentials that this advanced role can reach in patient care.

Manuscript

Spreading the News about Peanuts: Implementing an Infant Allergy Risk Assessment

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Abstract

Peanut allergies are the leading cause of death from food anaphylaxis. In 2017, the National Association of Allergy and Infectious Disease (NIAID) issued a guideline for use by primary care providers to identify infants who would benefit from early peanut consumption. Many providers have not yet implemented these guidelines in clinical practice. The purpose of this project was to implement a practice change to improve assessment of risk factors for peanut allergies utilizing the NIAID guideline in infants at their six-month well-child examination at a pediatric primary care practice. Risk factors assessed included: a history of eczema and/or egg allergy categorized by eczema and egg allergy severity. Family history, seen as a moderate risk factor for food allergy, was also assessed. The risk assessment was implemented by creating a provider alert on six-month wellness forms and a field for documentation into the electronic health record. Providers were given education materials for families of infants who would benefit from safe, early peanut consumption. This project is important for clinical practice; infants begin consuming solid foods at or around six-months of age and this is a critical time to address risk for future allergies and educate families on benefits of early consumption of allergenic foods, such as peanuts. Primary Care providers in primary care play a pivotal role in addressing new practice change. This project provides a framework for provider identifications of at-risk infants to move toward prevention of lifelong peanut allergy.

Introduction

The Centers for Disease Control (2017) estimates that 4-6% of children suffer from food allergies. In those children, 30.4% are allergic to more than one type of food (American Academy of Allergy, Asthma, and Immunology, n.d.). The prevalence of food allergies has increased over the last two decades and is a growing public and global health concern, especially in westernized countries (Tang & Mullins, 2017). It has been reported that peanut allergies in children in the United States (U.S.) increased from 0.4% in 1999 to 2% in 2010 (Togias et al., 2017). Food allergies are a lifelong issue carrying an extreme burden of disease for affected children whose families must be constantly aware to avoiding exposure and trigger risks.

Allergies develop when the immune system overreacts to a foreign substance in the body. Symptoms range from a mild rash and itching to a severe and possibly fatal episode of anaphylaxis. Anaphylaxis occurs when there is a large drop in blood pressure, swelling of the airways making it difficult to breathe, and decreased blood supply to vital organs, making this a life-threatening emergency (National Institute of Allergy and Infectious Disease, 2016; Sicherer et al., 2017). Peanut allergies in the U.S. are the greatest cause of death from food anaphylaxis and are on the rise. The upward trend in peanut allergies is thought to be due to the fact that allergies are epigenetic, meaning that they are affected by an interaction between heritable genetics and the environment. In epigenetic conditions, certain aspects of one's environment (i.e. diet,

lifestyle, climate) can trigger expression of a gene whereas other environments may not (Committee on Food Allergies, 2017). A consensus statement notes indirect evidence that genetics plays a role in food allergy development and family history is a moderate risk factor (Sicherer et al., 2017).

Additional risk factors are associated with peanut allergies. Atopic dermatitis (also known as "eczema") is a skin condition that affects the skin barrier and causes inflammation and breakdown. This inflammation of the skin makes an individual more sensitive when exposed to allergens and proteins in the environment, such as peanuts. Individuals with co-existing egg allergies have an increased risk for peanut allergies (Sicherer et al., 2017). The increased prevalence of peanut allergies, occurring early in childhood, and seldom outgrown, has lead researchers to recommend early prevention due to increased risk considerations (Du Toit et al., 2015).

The groundbreaking randomized control trial, known as the Learning Early About Peanut Allergy (LEAP) Trial, showed significant reduction in peanut allergy with early consumption of peanuts. This large trial included 640 infants 4-11 months old diagnosed with severe eczema, egg allergy, or both. Prior to randomization of each child, skin-prick tests were performed and those who were positive for peanut allergies were separated from those who were negative into two groups for analysis. Each infant in the two groups (positive vs. negative skin-prick tests) was then randomly assigned to a peanut consumption or peanut avoidance group until 60 months old. The

consumption group was defined at consuming 2 grams of peanut protein at one specific time during the first and second year of life, in addition to consuming 3 grams of peanut protein (12g or roughly 3 teaspoons of peanut butter) each week for 50% of the weeks during data collection (Du Toit et al., 2015).

At the end of the trial, infants in the negative versus the positive skin-prick tests prior to randomization were evaluated to determine presence of peanut allergy. In the group of infants with a negative skin-prick test at initiation, 13.7% in the peanut avoidance group had peanut allergies while only 1.9% of the peanut consumption group had peanut allergies; a relative risk reduction of 86.1%. The infants with positive skin-prick tests in the peanut avoidance group, 35.5% had peanut allergies, whereas 10.6% of infants in the peanut consumption group had peanut allergies at the end of data analysis; a relative risk reduction of 70%. Authors stated these outcomes show that early consumption of peanuts can prevent allergies at both the primary, prior to the disease occurring, and secondary, targeting those at risk for disease, levels (Du Toit et al., 2015).

The LEAP trial was extremely successful in showing that early intervention in consumption of peanuts can significantly reduce allergy prevalence at five years of life. Researchers performed a continuation of this study, the LEAP-On trial, to determine if tolerance to peanuts persisted after 12 months of avoiding consumption. This study consisted of 550 participants from the LEAP trial who were

separated in to peanut avoidance and peanut consumption groups for 12 months after the LEAP trial. At the end of this period, participants who consumed peanuts for the first 60 months of life then avoided for the 12 months had a 74% lower prevalence of peanut allergies than those participants who continued to avoid peanuts for the 72 months that both trials collected data (Du Toit et al., 2016).

Both the LEAP trial and LEAP-On study show that early peanut introduction into the infant diet can have lasting impact and reduction in allergy development. The timing of food introduction is critical for allergy prevention. A systematic review by Ierodiakonou et al. (2016) examined articles pertaining to various types of allergenic food and risk for sensitization. Analysis specific to peanut introduction at 4-11 months of age found a reduced frequency of 18 cases of peanut allergies per 1000 individuals (with an incidence of 2.5%).

The research outcomes described above have created a paradigm shift in practice. This transition has moved from delaying peanut introduction in infants to promoting early consumption of peanuts; especially in those at-risk infants. In 2017, the NIAID created a new guideline for providers to follow when infants are starting solid foods. The three-part guidelines are based on patient allergy risk. Infants with severe eczema and/or egg allergy are the highest risk for developing peanut allergies and these infants should be seen by a specialist for allergy testing prior to consumption. Infants with mild to moderate eczema and/or egg allergy should start consistent consumption

of peanuts at or around six months of age. Finally, infants with no history of eczema and/or egg allergy are considered low risk and may start consuming peanuts with family preferences (Togias et al., 2017) (Table 1).

Providers play a key role in both assessing risk as well as counseling families on early introduction of peanut containing foods. Experts found that without the provider knowledge and implementation of updated guidelines, introduction of allergenic foods, such as peanuts is delayed due to false beliefs that these foods should not be consumed in infants with eczema (Fleischer et al., 2016). A national consensus statement recommended that improved education and training of key stakeholders, such as primary care providers, is needed in order for allergy prevention to be employed. Education topics should include: risk factors and determinants of allergies, prevention strategies, and improving diagnosis (Sicherer et al., 2017).

One small survey found that pediatric providers and allergists are more likely to follow by the new NIAID guideline recommendations on early peanut consumption compared to family practice providers (Abrams, Singer, Soller, & Chan, 2018). There continues to be a lack of global knowledge and education of these recommendations, along with routine implementation into practice.

This gap in practice was the foundation of this project, the purpose of which was to implement a practice change to adequately assess risk factors for food allergies in

infants being seen for their six-month well-child examination at a small, three provider pediatric primary care office in Southern California.

Evidence-Based Practice Model

The Stevens Star Model of Knowledge Transformation was the framework for this project. Components of the Stevens Star Model consider that research and knowledge occur in stages over time to build impact. This model can be utilized for evidence-based practice when there are many different types of knowledge such as: randomized control trials, systematic reviews, guidelines, and consensus statements (Melnyk & Fineout-Overholt, 2015). Understanding that evidence at all levels can have an effect on implementing new practice is the foundation of both the Stevens Star Model and this project. The Steven's Star Model provided simple, easy to follow guidance throughout the process of implementing peanut allergy risk assessment to improve patient care (Stevens, 2013).

Methods

Study Design

This project took place over an eight-month period at a small, urban practice with one lead physician, two nurse practitioners, three Medical Assistants (MA), and an office manager. The clinic accepts all insurance types, with a predominance of patients having public insurance. It is important to note that at this clinic there are no computers in the patient rooms; providers use electronic charting after the visit. At each well-exam, the medical assistant (MA) presents the provider with a form

consisting of age-specific milestones and health surveillance prompts for the provider to utilize during the exam.

Infants included in the project were those presenting for a six-month wellness examination. Six-month age was chosen because the American Academy of Pediatrics (AAP) recommends starting solid foods at or around six-months (American Academy of Pediatrics, 2019). Infants were assessed for peanut allergy risk at the six-month wellness-examination utilizing the NIAID 2017 guideline (Togias et al., 2017). Risk factors included: a history of eczema and/or egg allergy that were categorized by severity. Family history, seen as a moderate risk factor for food allergy, was also assessed.

Stakeholder meetings were set up at this clinical site to present the NIAID guideline and provide education on its importance for clinical practice. Providers were very receptive to the implementation of this practice change. At these meetings providers were educated on the project process and given education materials for families of infants who would benefit from safe, early peanut consumption.

The allergy risk assessment was implemented by creating a provider alert on the six-month wellness form to ask if the patient had any history of eczema, egg allergy, or a family history of food allergies. If risk was identified, the provider educated and counseled parents on stating starting peanut containing foods or the need for allergy

testing. After the visit was completed, providers documented the assessment within the "allergy" section on the electronic health record (EHR) note.

Eczema and Egg Allergy Severity

Patient history of eczema was measured both through chart review and history/review of systems obtained during that visit. History of egg allergy was also questioned and if the patient was positive the type of reaction would be documented.

Family History

Family history is not part of the NIAID guideline recommendations. There has been discussion that there is a genetic component to food allergy development. This measure was utilized to assess any association between children at-risk for developing food allergy and family history.

Plans and Recommendations

Patients were stratified into high, moderate, and low/no risk categories based upon provider assessment. Allergy testing would be advised to those infants within the high-risk group. Recommendations to start consistent consumption of peanut containing foods were given to patients in the mild/moderate category post-assessment. Those with low/no risk were advised that the infant could start peanut consumption if desired by the family. This was documented within the education and anticipatory guidance section of the note for that patient visit.

Analysis

Prior to implementation of this project, there was no standard or routine peanut allergy risk assessment as part of the six-month well-exam. Data analysis was performed by chart review of provider documentation of risk factors for peanut allergies (eczema and/or egg allergy) and family history of food allergies within the visit note.

Ethical Considerations

This evidence-based practice project was approved by both the pediatric practice that participated and the University of San Diego Institutional Review Board. There were no conflicts of interest in the implementation of this project.

Results

This project consisted of a four-month retrospective chart review of the four months immediately prior to the implementation of the practice change. This was followed by a four-month period of data collection after the practice change was implemented. There were a total of 49 six-month well-exams in the pre-implementation phase and 40 six-month well-exams in the post-implementation period. Average age in the pre-implementation was 6-month 13 days and post-implementation 6 months 15 days. There was a 14.3% prevalence of eczema pre- and 22.5% prevalence post-implementation. No children were identified having an egg allergy. Due to a large amount of missing data, patient ethnicity was not included in the data analysis. In October 2017, this clinic had a change in the EHR and many patient charts were not

updated to include this key data variable. No children were identified as having an egg allergy.

There was an improvement in the practice change by adding routine allergy assessment to the six-month well-exam. There was overall provider uptake of allergy documentation of 72.5% at the end of data collection. July, the first month after the practice change was implemented, had the lowest documentation rate, 40%, this month also had the highest number of visits at 15. After this first month, the allergy assessment was highlighted on the six-month paper provider form and the field for documentation was added to the EHR. After these changes were made, the documentation rate increased from 40% to 92.9% from July to August. September had a 100% documentation rate and October, the final month had a 90% rate (Figure 1).

Seven of the infants who presented for their visit in the pre-implementation phase were at risk for developing peanut allergy, none of whom were identified. In the post-implementation phase, nine infants had a history of eczema. All of these were in the mild/moderate category. Three of these infants that would have benefited from education of early peanut consumption were missed. These children all presented to clinic in July (the first month after the practice change was implemented). There was an overall improvement of identifying infants with peanut allergy risk factors by 66% (Figure 2).

There were a total of 29 documented allergy risk assessments; of those completed 6 infants had history of family food allergy. Food allergies included: pineapple, wheat, and Shellfish/Shrimp. None of the infants who presented to clinical with a family history of food allergies had a history of eczema or egg allergy (Figure 3).

Discussion

This project successfully created a practice change, implementing routine allergy risk-assessment at the six-month well-exam at a small pediatric office. Early introduction of allergenic foods can reduce allergy prevalence and there remains a large gap in knowledge of primary care providers (Abrams et al., 2018). Providers in primary care play a pivotal role in addressing new practice change and early consumption of peanuts in high-risk infants. Through utilization of provider alert and documentation field, there was an improvement in assessing infants for peanut allergy risk.

Providers at this practice are given thirty-minute time intervals for all well-exams. Adding an allergy risk assessment took no more than 3 minutes of provider time to assess risk and educate parents. This could be done within the time it takes to do a physical exam and added no cost to the clinic or patients.

The benefits to this project have the potential to generate healthcare and patient long-term savings. These savings would be result of decreased Emergency Room (ER) visits and reduced medication need because of a reduction in peanut allergy prevalence. A report by Blue Cross Blue Shield (2018) estimated that the cost of one ER visit for an

anaphylactic episode in 2016 was $1,419, with a $373 out-of-pocket cost. The cost for an epinephrine auto-injector, the medication administered during an allergic reaction, is $493 for name brand and $234 for generic. Peanut allergies are a life-long diagnosis and purchasing of medication is continuous. Additionally, one patient with a peanut allergy may encounter multiple ER visits throughout his or her lifetime. Cost savings are therefore far greater than demonstrated in this paper. Implementing allergy prevention practices in primary care can significantly reduce lifelong patient health care costs.

Limitations to this project include the small size of the practice, making it difficult to generalize the intervention to larger systems. Future evidence-based practice projects focusing on allergy risk-assessment utilizing a provider alert should be done with a larger sample size.

In regard to family history, infants with peanut allergy risk factors did not have a family history of food allergies. This was again a small sample size and showed no association between risk factors for peanut allergy and family history of food allergy. Additional projects similar to this with a larger population may show the association of family history of food allergy to risk factors such as eczema.

An important barrier to implementation of this project was that this clinic does not use computers within patient rooms, which is why paper documentation was used. Results did show that use of this reminder and updates to the EHR increased the

performance of assessment. Compliance outcomes may have been improved with electronic prompts by in-room charting. Other contextual factors involved were creating provider motivation via updates on compliance and applying a field for documentation to create a convenient way for providers to chart the risk-assessment. Data collection took over a four-month period, although there was great improvement in adherence to change in practice, a longer time period or follow-up would be beneficial to assess sustainability.

There was only one visit during the month of September. One of the providers who predominately sees the newborn patients was out on leave six months prior. This absence along with temporal/seasonal changes could have influenced a decrease in visits.

Diagnosing a patient with mild/moderate versus severe eczema is a subjective and provider specific; thus, affecting the recommendation to start early consumption of peanuts or referral for allergy testing prior to initiating consumption. Some infants may have a later onset of eczema, after age six months. Providers will need to assess risk and address peanut consumption at later ages when a child develops eczema.

The NIAID 2017 addendum guideline primarily focuses on implementing peanut containing foods into the at-risk infant; those with eczema and/or egg allergy history (Togias et al, 2017). A new research study that assessed food anaphylaxis in children and infants showed that of infants presenting to the ER with food allergy, only 21% had

a history of eczema/atopic dermatitis (Samady, Trainor, Smith, & Gupta, 2018). Outcomes of this trial show that even infants with no risk factors for food allergy could still benefit from early peanut consumption. Additional research and evidence-based projects, such as this study, are needed to understand the long-term benefits of this novel guideline.

Conclusion

Implementing change into practice is a process that evolves over time. This evidence-based practice project provides baseline implementation of the NIAID guidelines to primary prevention of peanut allergies into clinical use. This project provides a framework for future data collection and evidence-based projects on allergies that have not been previously studied. Subsequent projects will be able to build off of baseline guidelines and focus on other topics including: precise diagnosis of an allergy in primary care, parent perception of early peanut consumption, and reasons for provider and patient non-compliance. The interventions and outcomes of this project lay a sustainable foundation to creating provider practice change and prevention of lifelong peanut allergies to improve patient outcomes.

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Table 1.

Summary of NIAID Guideline Addendum

Addendum	Measures	Recommendation
Guideline 1	Severe Eczema and/or Egg Allergy	Consider allergy (IgE or skin prick) testing prior to consumption of peanut containing foods
Guideline 2	Mild/Moderate Eczema and/or Egg Allergy	Start consistent consumption of peanut containing foods as early as 6 months
Guideline 3	No Eczema or Egg Allergy	May start peanut containing foods as early as 6 months and with cultural preferences

Note. The 2017 NIAID Addendum Guideline to Prevention of Peanut Allergy in the United States was used to create this table (Togias et al., 2017)

Table 2.
Population Demographics

Pre-Implementation (March 1, 2018 – June 30, 2018)		Post-Implementation (July 1, 2018 – October 31, 2018)	
Total Visits	**49**	**Total Visits**	**40**
Male	28 (57.1%)	Male	24 (60%)
Female	21 (42.9%)	Female	16 (40%)
Insurance Coverage		**Insurance Coverage**	
Public	28 (57.1%)	Public	29 (72.5%)
Private	21 (42.9%)	Private	11 (27.5%)
Mean Age at Visit	6 m 13 d (5m17d – 8m14d)	**Mean Age at Visit**	6 m 15 d (6m1d – 7m29d)
Eczema	7 (14.3%)	**Eczema**	9 (22.5%)
Egg Allergy	0 (0%)	**Egg Allergy**	0 (0%)
Identified at risk by Provider	0 (0%)	**Identified at risk by Provider**	6 (66.7%)

Note. Ethnicity was not included in this project due to missing data

Figure 1.
Provider Documentation Rate of Allergy Assessment

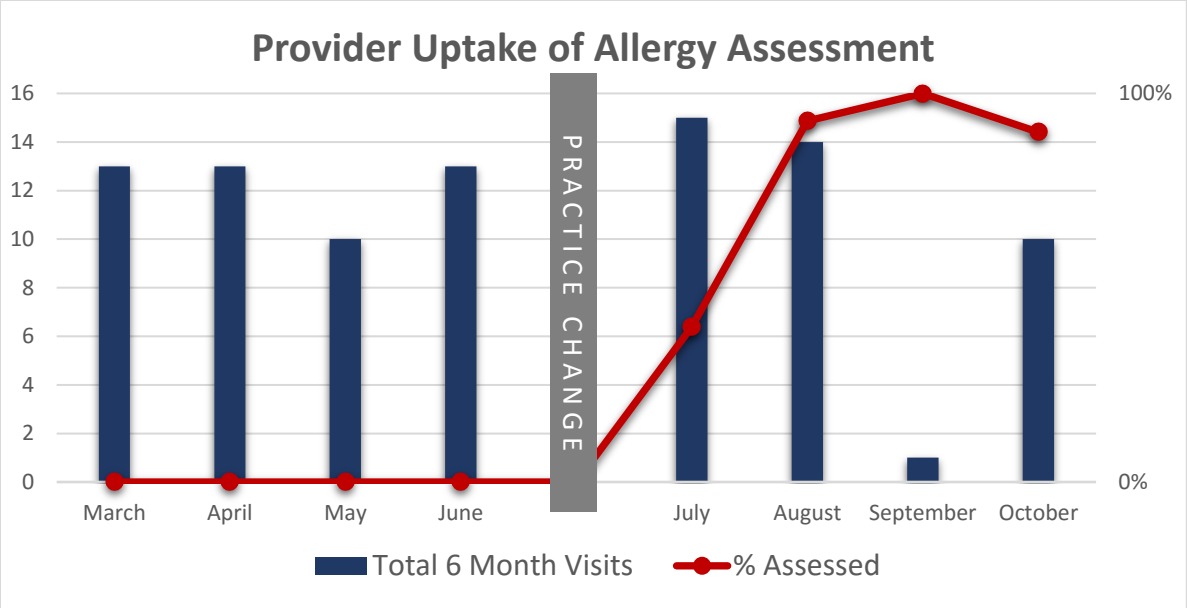


Figure 2.

Post-Implementation Missed Assessments of Infants at Risk for Peanut Allergy

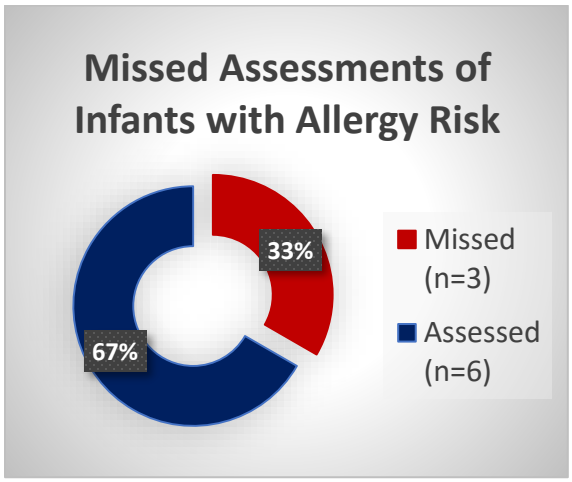
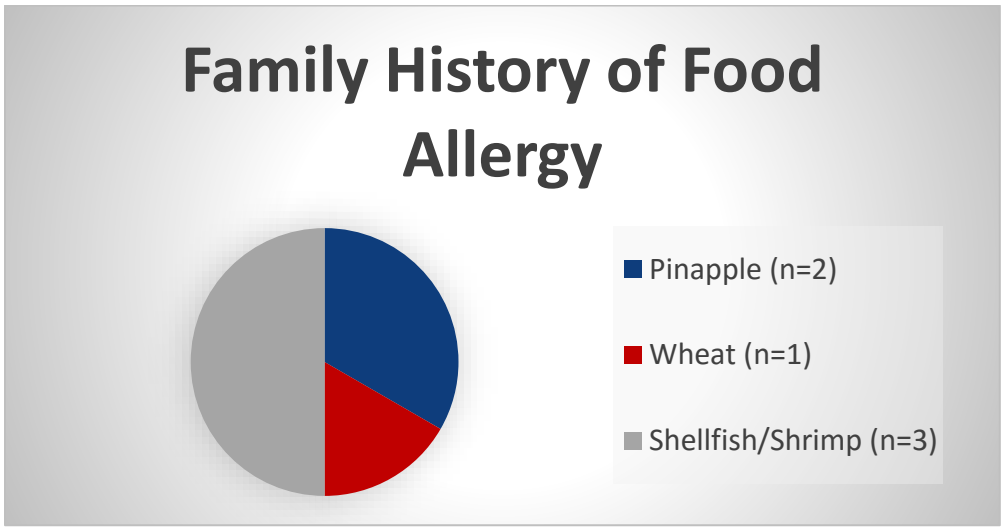


Figure 3.
Family History of Food Allergy



Note. Infants with family hx of food allergies did not present to visit with hx of eczema or egg allergy

Concluding Essay: Reflections on Growth in Advanced Practice Nursing Role

Reflecting back on the last four years it is still hard to believe that my time as a doctoral student has come to an end. I have grown incredibly from the start of this program and have gained a new perspective on what it means to be a Doctor of Nursing Practice (DNP). Transitioning to primary care has allowed me to understand the vital importance of health promotion, maintenance, and preventative care. Growing into a DNP over the last four years has given me to confidence to be able to be an independent advanced practice provider. I have developed the knowledge and responsibility to care for patients, instill motivation, and create strong patient/provider relationships that are vital to all patients, especially those with complex medical conditions.

Implementing an evidence based-guideline into clinical practice has taught me the need for providers to bring research into patient care. I learned that as a DNP it is my responsibility to bring new practices and policies into my direct care in order to improve patient outcomes, as well as to evaluate a new change as it evolves. The foundations I have from the process of implementing my own project will help me with others as I begin practicing as a DNP.

It is bittersweet to officially be done with my time as a doctoral student. I have learned an incredible amount from faculty, preceptors, and my peers who have all

mentored me along the way. I feel prepared to utilize the foundation I have established and I am excited to bridge into my new professional DNP role.

Appendix A

Jul 5, 2018 6:20 PM PDT

Kelly Kotula
Hahn School of Nursing & Health Science

Re: Exempt - Initial - IRB-2018-402, Identifying Peanut Allergy Risk in the 6-month Infant Population

Dear Kelly Kotula:

The Institutional Review Board has rendered the decision below for IRB-2018-402, Identifying Peanut Allergy Risk in the 6-month Infant Population.

Decision: Exempt

Selected Category: Category 4. Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Findings: None

Research Notes:

Internal Notes:

Note: We send IRB correspondence regarding student research to the faculty advisor, who bears the ultimate responsibility for the conduct of the research. We request that the faculty advisor share this correspondence with the student researcher.

The next deadline for submitting project proposals to the Provost's Office for full review is N/A. You may submit a project proposal for expedited or exempt review at any time.

Sincerely,

Dr. Thomas R. Herrinton
Administrator, Institutional Review Board

Office of the Vice President and Provost
Hughes Administration Center, Room 214

5998 Alcalá Park, San Diego, CA 92110-2492
Phone (619) 260-4553 • Fax (619) 260-2210 • ***www.sandiego.edu***

Appendix B

Jacobson Pediatrics
7910 Frost St. Suite 335
San Diego, CA 92123

To: Institutional Review Board, University of San Diego

From: Eugenia Jacobson, MD
Owner

Re: Use of Clinical Data

During 2017-2018, Ms. Kelly Kotula did a clinical residency at Jacobson Pediatrics as part of her coursework for the Doctor of Nursing Practice (DNP) Program at the University of San Diego. Ms. Kotula is now requesting the use of data from our clinic for an evidence-based class project and possible presentations and publications.

All data have been cleansed of any patient or institutional identifiers. I am supportive of Ms. Kotula using these pre-collected data.

If you have any questions, please do not hesitate to contact me at (858) 576-8010.

Sincerely,

Eugenia Jacobson, MD
Owner and Lead Physician, Jacobson Pediatrics

University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

To: Institutional Review Board, University of San Diego

From: Dr. Martha Grant Fuller
Faculty, Hahn School of Nursing and Health Science

I am serving as Faculty Mentor for the DNP Project being conducted by Kelly Kotula in the Hahn School of Nursing and Health Science. I approve of this timely and important project and will be advising this student throughout this process.

If you have any questions, please do not hesitate to contact me at (619) 260-4562 or mfuller@sandiego.edu.

Sincerely,

Martha Grant Fuller, PhD, PPCNP-BC
Clinical Associate Professor, Hahn School of Nursing and Health Science

Appendix C

Abstract for CANP 42nd Annual Conference

Peanut allergies are the leading cause of death from food anaphylaxis. In 2017, the National Association of Allergy and Infectious Disease (NIAID) issued a guideline for use by primary care providers to identify infants who would benefit from early peanut consumption. Many providers have not yet implemented these guidelines in clinical practice. The purpose of this project is to implement a practice change to improve assessment of risk factors for food allergies utilizing the NIAID guideline in infants at their six-month well-child examination at a pediatric primary care practice. Risk factors assessed included: a history of eczema and/or egg allergy categorized by severity. Family history, seen as a moderate risk factor for food allergy, was also assessed. The risk assessment was implemented by creating a provider alert on six-month wellness forms and a field for documentation into the electronic health record. Providers were given education materials for families of infants who would benefit from safe, early peanut consumption. This project is important for clinical practice. Infants begin consuming solid foods at or around six-months of age and this is a critical time to address risk for future allergies and educate families on benefits of early consumption of allergenic foods, such as peanuts. Providers in primary care play a pivotal role in addressing new practice change. This project provides a framework for provider identifications of at-risk infants to move toward prevention of lifelong peanut allergy.

Poster Presentation Approval Letter

CANP 42nd Annual Educational Conference Abstract Submission

Erin Meyer <erin@shawyoderantwih.com> Wed, Nov 7, 2018 at 1:37 PM
Cc: "Cher Hagaman (Education Co-Chair)" <cherrn2b@aol.com>, "Kristin Rhodes (Education Co-Chair)" <kristinnp@earthlink.net>

Dear Presenter,

Thank you for submitting an abstract to present a workshop, in-track session, or poster at CANP's 42nd Annual Educational Conference, taking place March 14-17, 2019 in San Diego. We appreciate your support for the Association's premier event. We would like to congratulate you on being selected to present at the upcoming conference.

Your abstract has been accepted by CANP's Educational Affairs Committee and we are thrilled you will be joining us at this exciting event. Presenters will be notified of their speaking assignment in the next couple of weeks. As a reminder we will do our best to accommodate presenter's schedules and availability but ask that presenters are available any date and time during the March conference dates.

If you are no longer available to present at the conference please notify Erin Meyer, Member Services Director via email at erin@canpweb.org or phone at (916) 441-1361 ext. 1 by Tuesday, November 13, so we don't reserve a spot for you on the agenda.

Feel free to contact us with any questions.

Sincerely,

CANP Educational Affairs Committee

Appendix D

Spreading the News about Peanuts: Implementing an Infant Allergy Risk Assessment

Kelly E. Kotula, BSN, RNC-NIC, DNP Student
JoAnn Pun, MSN, CPNP
Martha G. Fuller, PhD, PPCNP-BC

University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

Background

- It is estimated that **4-6%** of children suffer from **food allergies** and **30.4%** of those children are allergic to **more than one** type of food
- Food allergy **prevalence** has **increased** over the past two decades and is a growing **public health concern**
- **Peanut allergies** have increased significantly from **0.4% in 1999 to 2% in 2010.** Peanut allergies are the **leading cause of death** from **food anaphylaxis** in the United States

Evidence for Problem

- Learning Early About Peanut Allergy (LEAP) trial: children with peanut allergy risk factors had a 86.1% and 70% risk reduction in prevalence of peanut allergy in early consumption groups compared to avoidance groups at 60 months (Du Toit et al., 2015)
- LEAP-On trial: continued 74% reduced prevalence of peanut allergy in children with early consumption of peanuts after 12 month avoidance period (Du Toit et al., 2016)
- Early Introduction of allergenic foods can reduce allergy prevalence by up to 18 per 1,000 cases
- Starting allergenic foods in children with eczema may be delayed due to false beliefs that these foods should not be consumed

Framework/EBP Model

The Stevens Star Model of Knowledge Transformation

Purpose

The purpose of this project was to implement a practice change to adequately assess risk factors for peanut allergies in infants being seen for their six-month well-child examination at a small, pediatric primary care practice in Southern California

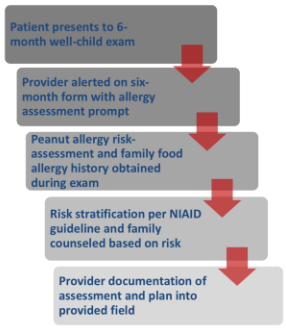
Evidence-Based Benchmark

National Institute of Allergy and Infectious Disease (NIAID) Addendum Guideline Summary for Peanut Allergy Prevention:

Addendum	Measures	Recommendation
Guideline 1	Severe Eczema and/or Egg Allergy	Consider allergy (IgE or skin prick) testing prior to consumption of peanut containing foods
Guideline 2	Mild/Moderate Eczema and/or Egg Allergy	Start consistent consumption of peanut containing foods as early as 6 months
Guideline 3	No Eczema or Egg Allergy	May start peanut containing foods as early as 6 months and with cultural preferences

Togias, et al. (2017). Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases–sponsored expert panel. Annals of Allergy, Asthma, and Immunology, 118 (2017), 166-173.

Project Plan Process

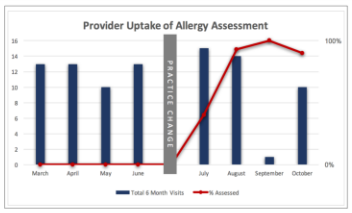


Evaluation Results

Population Demographics

Pre-Implementation (March 1, 2018 - June 30, 2018)		Post-Implementation (July 1, 2018 - October 31, 2018)	
Total Visits	**49**	**Total Visits**	**40**
Male	28 (57.1%)	Male	24 (60%)
Female	21 (42.9%)	Female	16 (40%)
Insurance Coverage		**Insurance Coverage**	
Public	28 (57.1%)	Public	29 (72.5%)
Private	21 (42.9%)	Private	11 (27.5%)
Mean Age at Visit	6 m 13 d (5m17d – 8m14d)	**Mean Age at Visit**	6 m 15 d (6m1d – 7m29d)
Eczema	7 (14.3%)	**Eczema**	9 (22.5%)
Egg Allergy	0 (0%)	**Egg Allergy**	0 (0%)
Identified at risk by Provider	0 (0%)	**Identified at risk by Provider**	6 (66.7%)

Note. Ethnicity was not included due to missing data



Post implementation: 9 infants had mild to moderate eczema (a risk factor for peanut allergy). Only 6 (67%) were identified as having allergy risk.

Conclusions

- Infants begin consuming solid foods at or around six-months of age; a time of a routine well-exam and an opportunity to address risk for peanut allergy development and educate families on benefits of early consumption of peanut-containing foods
- This prevention project implemented an evidence-based, routine allergy risk assessment of the 6-month infant into clinical practice

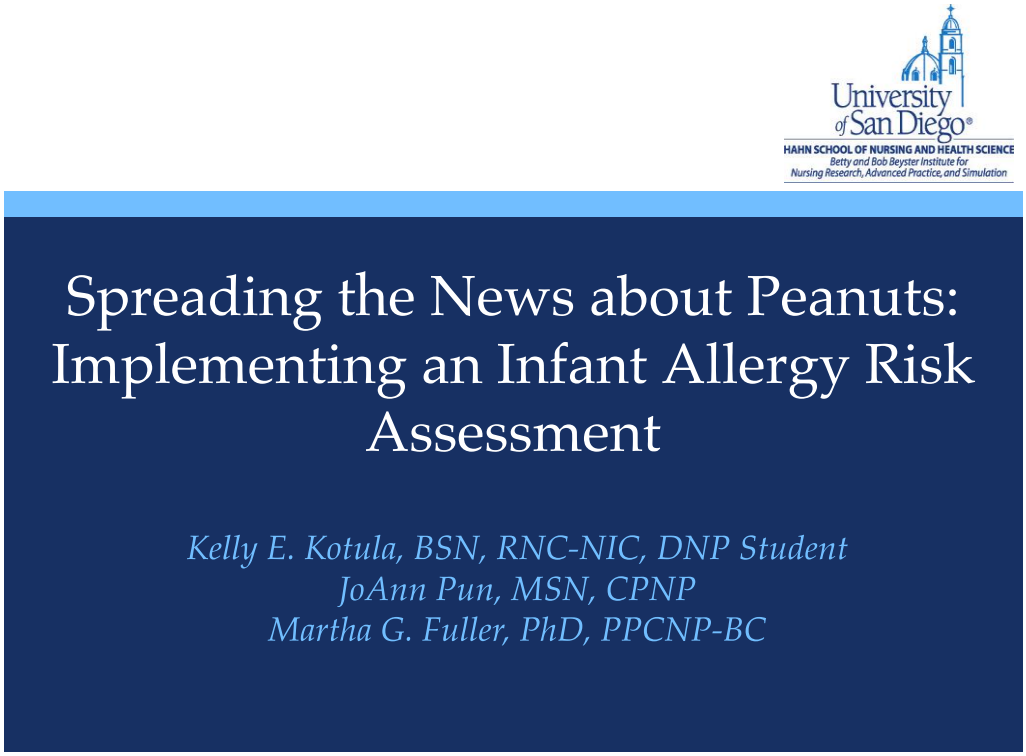
Cost-Savings

- Implementing an allergy risk assessment adds 3 minutes of provider time (in conjunction with routine well-child visit intake and education)
- Early consumption of peanuts can greatly reduce development of peanut allergies and decrease Emergency Room (ER) visits and reduce health care costs:
  - Estimated costs for one ER visit for an anaphylactic episode: $1,419 (2016)
  - Epinephrine auto-injector: $234-$493 (2016)

Implications for Clinical Practice

- **Primary care providers** play a **pivotal role** in addressing new health care **system changes**; especially when there is a paradigm shift in practice
- **Families** can be informed on the importance of **early peanut introduction** at a time where **prevention** of peanut allergy is possible
- Providers may need to **consider allergy prevention education** with **all infants** as new research indicated a small percent of children presenting to the ER with food allergy had a history of risk factors

Appendix E



Background and Significance

- It is estimated that 4-6% of children suffer from food allergies and 30.4% of those children are allergies to more than one type of food
- Food allergies have increased over the last two decades and are a growing public health concern
- Peanut allergies have increased significantly from 0.4% in 1999 to 2% in 2010 and are the leading cause of death from food anaphylaxis in the United States
- Early introduction of peanut protein containing foods can prevent long-term allergy in at-risk infants
- In 2017 the National Institute of Allergy and Infectious Disease (NIAID) changed guidelines to prevent peanut allergies
- Knowledge gaps remain among primary care providers and there is a global lack of implementation of routine allergy assessment into clinical practice

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NIAID Addendum Guidelines

Addendum	Risk Factor	Recommendation
Guideline 1	Severe Eczema and/or Egg Allergy	Consider allergy (IgE or skin prick) testing prior to consumption of peanut containing foods
Guideline 2	Mild/Moderate Eczema and/or Egg Allergy	Start consistent consumption of peanut containing foods as early as 6 months
Guideline 3	No Eczema or Egg Allergy	May start peanut containing foods as early as 6 months and with cultural preferences

Togias, et al. (2017). Addendum guidelines for the prevention of peanut allergy in the United States: Report of the National Institute of Allergy and Infectious Diseases – sponsored expert panel. *Annals of Allergy, Asthma, and Immunology*. 118 (2017). 166-173.

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Family History and Food Allergies

Family history is not part of the NIAID guideline addendum; however it is a moderate risk factor for food allergy development. Although food allergies are thought to be epigenetic, the influence of genetics on food allergy remain unclear.

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Needs Assessment

- Providers at clinical site were not utilizing the NIAID guidelines in clinical practice and patients were not being assessed for peanut allergy risk

- Current patient intake does not specifically ask about family food allergy history; a moderate risk factor for food allergies

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Purpose/Aims

- The purpose of this project was to implement a practice change to adequately assess risk factors for food allergies in infants being seen for their six-month well-child examination at a small, three provider pediatric primary care practice in Southern California
- This project was developed through utilizing the 2017 NIAID Guideline recommendations on early peanut consumption in at-risk infants

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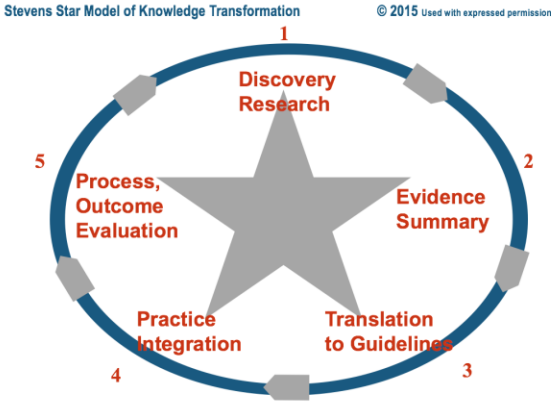
Framework/EBP Model

The Stevens Star Model of Knowledge Transformation



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Synopsis of the Evidence

- The Learning Early About Peanut Allergy (LEAP) trial showed that children with peanut allergy risk factors had both a 86.1% and 70% risk reduction in prevalence of peanut allergies in early consumption groups compared to peanut avoidance groups at 60 months (Du Toit et al., 2015)
- The LEAP-On trial resulted in continued 74% reduced prevalence of peanut allergy in children with early consumption of peanuts after 12 month avoidance period (Du Toit et al., 2016)
- Early Introduction of allergenic foods, such as peanuts, can reduce allergy prevalence by up to 18 per 1,000 cases
- Starting allergenic foods in children with eczema may be delayed due to false beliefs that these foods should not be consumed

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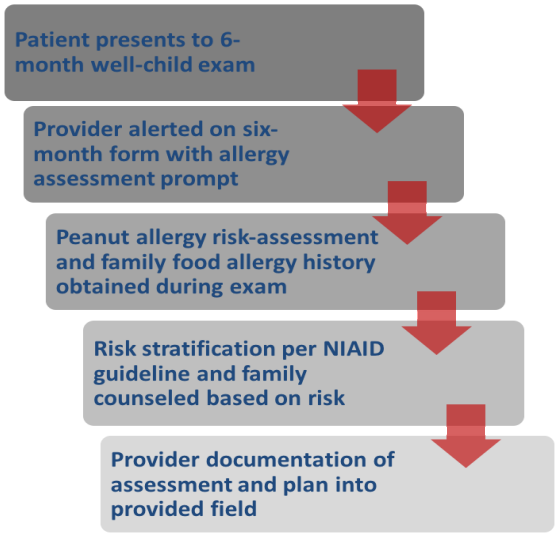
Project Plan Process



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Timeline

January 2018-June 2018

- Pre-implementation phase
  - Meetings with providers to discuss need for practice change and obtain approval

July 2018

- IRB Approval
- Retrospective chart review of records March 2018-June 2018

July 2018-October 2018

- Implementation phase

November 2018-December 2018

- Data Analysis

Spring 2019

- Data Dissemination
  - Stakeholder Presentation
  - Research Day
  - Poster Presentation at CANP 2019 Conference
  - Completion of Final Manuscript

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Results: Patient Demographics

Pre-Implementation (March 1, 2018 - June 30, 2018)		Post-Implementation (July 1, 2018 - October 31, 2018)	
Total Visits	**49**	**Total Visits**	**40**
Male	28 (57.1%)	Male	24 (60%)
Female	21 (42.9%)	Female	16 (40%)
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Egg Allergy	0 (0%)	**Egg Allergy**	0 (0%)
Identified at risk by Provider	0 (0%)	**Identified at risk by Provider**	6 (66.7%)

Note. Ethnicity was not included due to missing data

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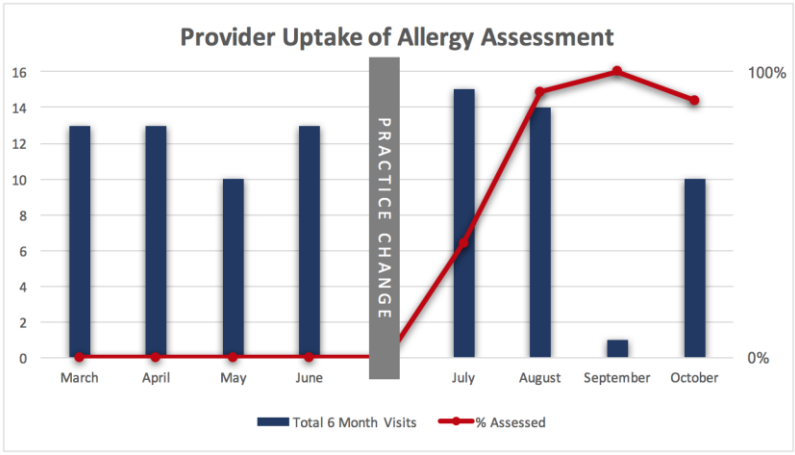
Results: Provider Compliance



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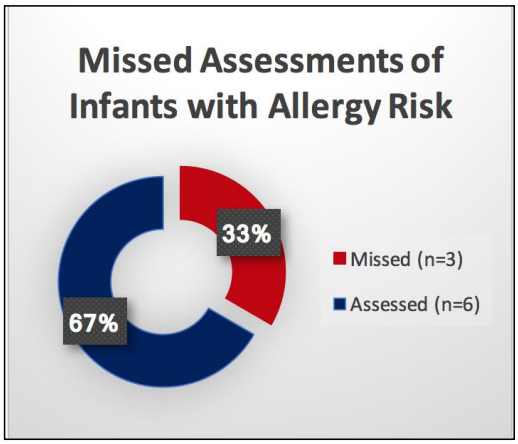
Results: Risk Stratification and Missed Assessments (Post-Implementation)



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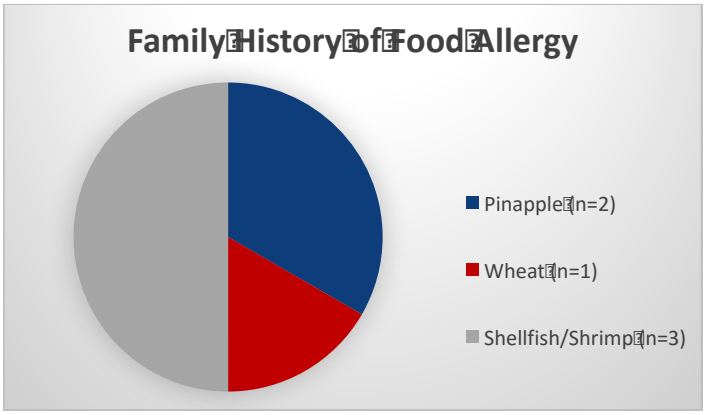
Results: Family History



Note. Infants with family hx of food allergies did not present to visit with hx of eczema or egg allergy

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Cost-Benefit Analysis

- Implementing an allergy risk assessment and giving education adds 3 minutes of provider time done in a routine well child visit.
- Counseling parents on early consumption of peanuts can greatly reduce development of peanut allergies and decrease Emergency Room (ER) visits
- The estimated cost for one ER visit from an anaphylactic episode in 2016 was $1,419 with an out-of-pocket cost of $373; the cost for an Epinephrine auto-injector is $234-$493.
- Improved allergy prevention practices in primary care can significantly reduce patient health care costs. Costs above are for only one episode of anaphylaxis and one auto-injector purchase

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Conclusions

- Infants begin consuming solid foods at or around six-months of age that is also a time of a routine well-exam
- This is an critical opportunity to address risk for peanut allergy development and educate families on benefits of early consumption of allergenic foods
- Providers in primary care play a pivotal role in addressing new system changes; especially when there is a paradigm shift in practice
- This prevention project implemented an evidence-based, routine allergy risk assessment of the 6-month infant into clinical practice

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Implications for Clinical Practice

- This evidence-based practice project demonstrates the importance for primary care providers to routinely assess for food allergy risk in the six-month infant
- Families can be informed on the importance of early peanut introduction at a time where prevention of peanut allergy is possible
- Providers may need to consider allergy prevention education with all infants as new research indicated a small percent of children presenting to the ER with food allergy had a history of risk factors

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…stay tuned for more updates!

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Appendix F

AACN DNP Essentials/NONPF Competencies/USD DNP Program Outcomes Exemplars

AACN DNP Essentials & NONPF Competencies	**USD DNP Program Objectives**	**Exemplars** Provide bulleted exemplars that demonstrates achievement of each objective

DNP Essential I: Scientific Underpinnings for Practice **NONPF: Scientific Foundation Competencies** *The scientific foundation of nursing practice has expanded and includes a focus on both the natural and social sciences including human biology, genomics, science of therapeutics, psychosocial sciences, as well as the science of complex organizational structures. In addition, philosophical, ethical, and historical issues inherent in the development of science create a context for the application of the natural and social sciences.*	**2.** Synthesize nursing and other scientific and ethical theories and concepts to create a foundation for advanced nursing practice.	**Fall 2015** • Developed a solid foundation of human biology and various disease states and the pathophysiological changes within the body (APNC 520). **Spring 2016** • Obtained a strong knowledge-base of the pharmacodynamics and pharmacokinetics of drugs as well as an understand of how to treat various primary care conditions through pharmacological therapy (APNC 523). **Fall 2016** • Established an understanding of genomics and the pathogenesis for various genetic diseases, the ethical issues involved, and how to assess and educate patients and families on their own genetic/environmental risks (DNPC 622). **Spring 2018** • Utilized the ACE Star Model to guide development of an EBP project to implement a practice change and improve food allergy risk assessment in infants (DNPC 686)
DNP Essential II: Organizational & System Leadership for Quality Improvement & Systems Thinking **NONPF: Leadership Competencies/Health Delivery System Competencies** *Advanced nursing practice includes an organizational and systems leadership component that emphasizes practice, ongoing improvement of health outcomes, and ensuring patient safety. Nurses should be prepared with sophisticated expertise in assessing organizations, identifying system's issues, and facilitating organization-wide changes in practice delivery. This also requires political skills, systems thinking, and the business and financial*	**5.** Design, implement, and evaluate ethical health care delivery systems and information systems that meet societal needs and ensure accountability for quality outcomes.	**Summer 2017** • Presented a case study presentation on the Quality in Pediatric Subspecialty Care (QPSC) initiative and goals to improve care and standardizing outcomes of various, rare pediatric conditions (DNPC 626). • Constructed a monthly budget and analysis for a primary care clinic and implications regarding a variance report (DNPC 653). • Developed an understanding of the "worth of a Nurse Practitioner" and how to calculate salary with including overhead and marginal costs (DNPC 653). • Created a "financial case" to discuss the money needed and revenue projected for implementing standing orders

acumen needed for the analysis of practice quality and costs.		to improve HPV vaccination rates (DNPC 626). • Constructed a three-year financial prospectus on clinic revenue form improving vaccination rates. Also, gained understanding in how to make a prospectus for other EBP projects. (DNPC 626) **Spring 2018** • Wrote a paper regarding implementing a program to assess peanut allergy risk at 6-month-old well visits to prevent long-term allergy development (DNPC 686).
DNP Essential III: Clinical Scholarship & Analytical Methods for Evidence-Based Practice **NONPF: Quality Competencies/Practice Inquiry Competencies** *Scholarship and research are the hallmarks of doctoral education. Although basic research is viewed as the first and most essential form of scholarly activity, an enlarged perspective of scholarship has emerged through alternative paradigms that involve more than discovery of new knowledge. These paradigms recognize: (1) the scholarship of discovery and integration "reflects the investigative and synthesizing traditions of academic life"; (2) scholars give meaning to isolated facts and make connections across disciplines through the scholarship of integration; and (3) the scholar applies knowledge to solve a problem via the scholarship of application that involves the translation of research into practice and dissemination and integration of new knowledge.*	**4.** Incorporate research into practice through critical appraisal of existing evidence, evaluating practice outcomes, and developing evidence-based practice guidelines.	**Fall 2015** • Synthesized and critiqued evidence-based practice articles of various pathophysiological states through Clinical Grad Round assignments and related to current or future practice. (APNC 520). • Reviewed current literature to develop a PICO question and summarized findings to write a paper titled "Retinopathy of Prematurity and Oxygen Saturations in the Premature Infant" • (DNPC 611). **Spring 2016** • Synthesized Complementary and Alternative Medicine evidence to create a patient pamphlet on the safe use of milk thistle (APNC 523). **Fall 2016** • Presented a case-study presentation and the genetic components of Prader Willi Syndrome and the most up-to-date treatment (DNPC 622). • Presented and wrote a manuscript regarding Hemophilia, its pathogenesis, treatment, implications for patients, and future (DNPC 622). • Created a screening program and recommendations for skin cancer at primary care appointments and how to assess risk (DNPC 625).

		Sumer 2017 • Made a quality improvement presentation regarding implementing standing orders to improve HPV vaccination rates (DNPC 653). **Summer 2018** • Obtained IRB approval for a scholarly project to assess peanut allergy risk in the 6-month-old infant population through utilizing the NIAID guidelines (DNPC 630).
DNP Essential IV: Information Systems/Technology & Patient Care Technology for Improvement & Transformation of Health Care **NONPF: Technology & Information Literacy Competencies** *DNP graduates are distinguished by their abilities to use information systems/technology to support and improve patient care and health care systems, and provide leadership within healthcare systems and/or academic settings. Knowledge and skills related to information systems/technology and patient care technology prepare the DNP graduates apply new knowledge, manage individual and aggregate level information, and assess the efficacy of patient care technology appropriate to a specialized area of practice along with the design, selection, and use of information systems/technology to evaluate programs of care, outcomes of care, and care systems. Information systems/technology provide a mechanism to apply budget and productivity tools, practice information systems and decision supports, and web-based learning or intervention tools to support and improve patient care.*	**7.** Incorporate ethical, regulatory, and legal guidelines in the delivery of health care and the selection, use, and evaluation of information systems and patient care technology.	**Fall 2016** • Received Biomedical Research and Human Certification through CITI (DNPC 625). **Spring 2017** • Developed an understanding of health care technology and implementing new informatics through work-flows and systems development, while eliminating lean waste within the work environment. (HCIN 540). • Created a report on current sleep deficits within the United States adult population and utilized learned Excel knowledge to best display data (HCIN 540). **Summer 2017** • Gained knowledge on the use of standing orders in the EHR and how this can streamline workflow in patient care (DNPC 626).

DNP Essential V: Health Care Policy for Advocacy in Health Care **NONPF: Policy Competencies** *Health care policy, whether created though governmental actions, institutional decision-making, or organizational standards, creates a framework that can facilitate or impede the delivery of health care services or the ability of the provider to engage in practice to address health care needs. Engagement in the process of policy development is central to creating a health care system that meets the needs of its constituents. Political activism and a commitment to policy development are central elements of DNP practice.*	**3.** Demonstrate leadership in collaborative efforts to develop and implement policies to improve health care delivery and outcomes at all levels of professional practice (institutional, local, state, regional, national, and/or international).	**Spring 2016** • Presented and developed a manuscript on current health care disparities that remain within the United States and policies relating to Healthy People 2020 (DNPC 648). • Created a policy brief on increasing access to health care for children through School-Based Health Centers (DNPC 648).
DNP Essential VI: Interprofessional Collaboration for Improving Patient & Population Health Outcomes **NONPF: Leadership Competencies** *Today's complex, multi-tiered health care environment depends on the contributions of highly skilled and knowledgeable individuals from multiple professions. In order to accomplish the IOM mandate for safe, timely, effective, efficient, equitable, and patient-centered care in this environment, health care professionals must function as highly collaborative teams. DNPs have advanced preparation in the interprofessional dimension of health care that enable them to facilitate collaborative team functioning and overcome impediments to interprofessional practice. DNP graduates have preparation in methods of effective team leadership and are*	**1.** Demonstrate advanced levels of clinical practice within defined ethical, legal, and regulatory parameters in designing, implementing, and evaluating evidenced-based, culturally competent therapeutic interventions for individuals or aggregates. **3.** Demonstrate leadership in collaborative efforts to develop and implement policies to improve health care delivery and outcomes at all levels of professional practice (institutional, local, state, regional, national, and/or international).	**Spring 2017** • Gained the ability, through utilizing reflective practice and theory, to be a leader when practicing and to provide therapeutic care to patients (DNPC 610). **Summer 2017** • Presentation on the QPSC process approach toward improving pediatric population health outcomes through national databases, improvement collaborates, and web-based modules (DNPC 626). **Summer 2017-Spring 209** • Student Representative for the San Diego NAPNAP Chapter. **Fall 2017** • Gave a podium presentation "NICU and Beyond: Adventures in Developmental Assessment" at the San Diego NAPNAP Chapter fall 2017 event on the premature infant. **Fall 2018** • Submitted an abstract in fulfilment of DNP project that

prepared to play a central role in establishing interprofessional teams, participating in the work of the team, and assuming leadership of the team when appropriate.		was accepted to present at the CANP 2019 conference (DNPC 630). **Spring 2019** • Data dissemination of DNP Project "Spreading the News about Peanuts: Implementing an Infant Allergy Risk Assessment" 1. DNP Presentation Day 2. Poster Presentation at CANP 42nd 2019 Conference 3. Stakeholder Presentation 4. Completion of Final Manuscript
DNP Essential VII: Clinical Prevention & Population Health for Improving Nation's Health **NONPF: Leadership Competencies** *Consistent with national calls for action and with the longstanding focus on health promotion and disease prevention in nursing, the DNP graduate has a foundation in clinical prevention and population health. This foundation enables DNP graduates to analyze epidemiological, biostatistical, occupational, and environmental data in the development, implementation, and evaluation of clinical prevention and population.*	**6.** Employ a population health focus in the design, implementation, and evaluation of health care delivery systems that address primary, secondary, and tertiary levels of prevention.	**Fall 2016** • Created secondary screening recommendations for skin exams at primary care appointments (DNPC 625). **Summer 2017** • Created a driver diagram on improving HPV vaccination rates in the pediatric male population; discussed the primary drivers and need for cancer prevention (DNPC 626). **Fall 2017** • Developed an understand in health promotion for the pediatric, adult, and geriatric population and recommendations for prevention (NPTC 602). **Summer 2018** • Stated an evidence-based practice project on assessing peanut allergy risk in the 6-month-old infant population to improve systems on early consumption of peanuts and prevention of lifelong allergy (DNPC 630).

DNP Essential VIII: Advanced Nursing Practice **NONPF: Independent Practice/Ethics Competencies** *The increased knowledge and sophistication of healthcare has resulted in the growth of specialization in nursing in order to ensure competence in these highly complex areas of practice. The reality of the growth of specialization in nursing practice is that no individual can master all advanced roles and the requisite knowledge for enacting these roles. DNP programs provide preparation within distinct specialties that require expertise, advanced knowledge, and mastery in one area of nursing practice. A DNP graduate is prepared to practice in an area of specialization within the larger domain of nursing.*	**1**. Demonstrate advanced levels of clinical practice within defined ethical, legal, and regulatory parameters in designing, implementing, and evaluating evidence-based, culturally competent therapeutic interventions for individuals or aggregates.	**Fall 2017** • Became proficient on health promotion and prevention through the lifespan. Utilized this knowledge at an adult community clinic in an underserved population (NPTC 604). **Spring 2018** • Gained competence in the role of a Student Health Nurse Practitioner as well as independence in assessing and treating common acute illness in both adult and pediatric populations (NPTC 605). **Summer 2018** • Developed a foundation and understanding of pediatric gastrointestinal disorders and became proficient in the duties of the nurse practitioner in specialty care (NPTC 605/NPTC 549). **Fall 2018** • Through the Family Health Centers ICPP program, received advanced knowledge of managing mental health and substance use disorders in primary care and the use of "soft handoffs" in clinical practice (NPTC 608). **Spring 2019** • Became knowledgeable of congenital heart defects and the role of the PNP in pre-operative and post-operative outpatient appointments for children having cardiac surgery (NPTC 609).