



April 2022

Brody School of Medicine
5th Annual

DISTINCTION DAY
Abstract Book

Acknowledgments

The Brody School of Medicine Distinction Track Programs would like to express sincere gratitude to the following individuals and participating faculty of the following departments for their support of the 2022 distinction track program graduates. Those listed provided mentorship, financial support, research resources, and/or administrative support for the programs. These generous contributions make it possible for BSOM students to learn and make their own contributions to the field of medicine through scholarly pursuits.

Distinction Track Program Leadership

Dr. Timothy Reeder and Dr. Suzanne Lazorick, Health System Transformation and Leadership Distinction Track

Dr. Johanna Hannan, Research Distinction Track

Dr. David Eldridge and Kacie Lord, Medical Education and Teaching Distinction Track

Dr. Jennifer Crotty, Service-Learning Distinction Track

Distinction Track Program Administration

Jenna Garris, Distinction Track Program Administrator
Jess Day-Brinkley, Course Coordinator

Distinction Day Twitter Master

Ethe Maganga, Service-Learning Scholar

Distinction Day Abstract Book Compilation

Jess Day-Brinkley and Kathryn Sang

Acknowledgments

Health System Transformation and Leadership Distinction Track Program Mentors

Dr. Robert Portela, Department of Emergency Medicine
Dr. Jennifer Stahl, Department of Emergency Medicine
Dr. James deVente, Department of Obstetrics & Gynecology
Dr. Amanda Higginson, Department of Pediatrics
Dr. Mary Catherine Turner, Department of Pediatrics
Dr. Lacy Hobgood, Department of Pediatrics
Dr. Jennifer Sutter, Department of Pediatrics
Dr. Suzanne Lazorick, Department of Pediatrics
Dr. Judith Ugale-Wilson, Department of Pediatrics

Research Distinction Track Program Mentors

Dr. Doyle "Skip" Cummings, Department of Family Medicine
Dr. Jennifer Stahl, Department of Emergency Medicine
Dr. Kori Brewer, Department of Emergency Medicine
Dr. Yuxuan Mao, Department of Internal Medicine
Dr. Rebecca Snyder, Department of Surgery
Dr. Rukiyah Van Dross, Department of Pharmacology
Dr. Andrew Ju, Department of Radiation Oncology
Dr. Kathrin Rothermich, Department of Communications Sciences
and Disorders
Dr. Kolasa, Department of Family Medicine
Dr. Megan Ferderber, Department of Family Medicine

Acknowledgments

Medical Education and Teaching Distinction Track Program Mentors

Dr. Mary Windham Lenfestey, Department of Pediatrics

Dr. Miller Johnstone, Department of Family Medicine

Dr. Jill Sutton, Department of Obstetrics & Gynecology

Dr. Philip Boyer, Department of Pathology

Dr. Milton Bond, Department of Academic Affairs

Dr. Ann Sperry, Department of Anatomy and Physiology

Dr. Dmitry Tumin, Department of Pediatrics

Dr. Hellen Ransom, Department of Bioethics

Dr. Cassandra Bradby, Department of Emergency Medicine

Dr. Jennifer Stahl, Department of Emergency Medicine

Service-Learning Distinction Track Program Mentors

Dr. Karlene Cunningham, Department of Psychiatry

Dr. Allison Lemon, Department of Pediatrics

Dr. Shaundreal Jamison, Department of Pediatrics

Dr. Irene Pastis, Department of Psychiatry

Dr. Marissa Carraway, Department of Family Medicine

Dr. Hotensia Beng, Department of Pediatrics

Dr. Stephen Charles, Department of Medical Education

Dr. Robin Tutor-Marcom, Agromedicine Institute

Maurice Jordan, Lucille Gorham Inter-Generational Community Center

Maudia Ahmad, Department of Social Work

Ji Lim, James D. Bernstein Dental Clinic

Acknowledgments

Rosemary B. Allen Summer Scholars Research Fund

Dr. Davis Allen III, BSOM Class of 2006

Nitin Gupta Research Endowment

Dr. Nitin and Mrs. Mousami Gupta

John and Ann Laliotes LINC Scholars Endowment

Mr. and Mrs. Laliotes

Brody School of Medicine Distinction Track Programs Fund

Vidant Medical Center Medical Staff

Institutional Support

BSOM Division of Academic Affairs

Truist Center for Leadership Development

Vidant Health

Health System Transformation & Leadership Distinction Track

The Use of High Flow Nasal Cannula Outside of the Pediatric Intensive Care Unit

Camille Bauer MS; Judith Ugale-Wilson, MD; Frederick Stine DO, MHA; Dmitry Tumin, PhD; Michael Dunkerley, BSN
Institutions: Vidant Medical Center and East Carolina Brody School of Medicine

PURPOSE/OBJECTIVES: Bronchiolitis is an acute lung disease that causes inflammation and congestion of the small airways. It is a common respiratory disease seen most severely in children under 2 years old. Regarding treatment, the American Academy of Pediatrics recommends supportive therapy with hydration maintenance, respiratory support, and supplemental oxygen for hypoxemia. High flow nasal cannula (HFNC) has been used for children with bronchiolitis, significantly decreasing the work of breathing and preventing the need for escalation of care. Studies have shown that the use of HFNC decreases rates of intubation and mechanical ventilation. AIM: The purpose of this study is to show that the use of a new HFNC policy allowing higher flows outside the Pediatric Intensive Care Unit (PICU) for respiratory support of patients with bronchiolitis up to two years of age, results in at least a 25% reduction in transfers to the PICU, and decreases average patient length of stay.

METHODS: Fifty patients age \leq 24 months admitted for bronchiolitis to the general ward were identified in the pre-intervention period (January-March 2019) and 52 patients were identified in the post-intervention period (January-March 2020). In the pre-intervention period, 11 patients received respiratory support on HFNC. In the post-intervention period, 33 patients were on NC, 19 on HFNC.

RESULTS: Although HFNC use was more common in the post-intervention period, this difference did not reach statistical significance ($p=0.107$). Fewer patients in the post-intervention cohort required admission to the PICU (26% vs. 55%, $p=0.122$). Median hospital length of stay was shorter post-intervention (3 vs. 5 days) and the maximum Pediatric Early Warning Score was lower post-intervention (median of 6 vs. 7 points), ($p=0.066$ and $p=0.081$, respectively).

CONCLUSION/DISCUSSION: There is no increase in escalation of care requiring transfer to PICU in patients \leq 24 months old with bronchiolitis using the new HFNC policy. The results of this project support the use of higher flows (1.5L/kg/min) in the general pediatric floor for this patient population. There was a 31% reduction in transfers to the PICU because of this new policy. Although the findings for this study were useful for making clinical decisions, some of the results were not statistically significant, likely due to a smaller sample size. COVID-19 limited this study; additional cycles were planned for 2021 RSV season, but were unable to be completed as pediatric admission numbers fell.

Improving the Completion and Documentation of the Diabetic Foot Exam at the ECU Med-Peds Clinic

Anita Gandhi, BSPH; Mary Catherine Turner, MD
Brody School of Medicine at East Carolina University

Introduction: Foot ulcers are one of the most common complications of diabetes and can result in infections, deformities, and amputations. If performed annually, using a Semmes-Weinstein 5.07/10-gram monofilament, the diabetic foot exam can clue providers into sensory changes that contribute to the formation of ulcers. The ECU Med-Peds Clinic is an academic practice with 29 providers, where a quality improvement project focusing on increasing the completion and documentation of the diabetic foot exam was implemented from March 2021 to March 2022. This project aimed to have 70 percent of patients with diabetes have documentation of a received foot exam in the past one year.

Methods: The project involved plan-do-study-act cycles to optimize the clinical workflow and completion of the foot exam. The outcome measure was the percentage of documented foot exams, obtained from the electronic medical record (EMR). Initially, an anonymous survey was sent to all providers to identify reasons why the foot exam was not completed. Various ECU clinics were visited to see what effective interventions had been employed. First, monofilaments were placed in a readily accessible and visible location, in addition to replacing broken/missing ones. The second intervention focused on providing a 30-minute education session in the clinic on how to perform the foot exam and document it in the EMR. Lastly, a chart review was performed for the 898 patients that did not have a documented foot exam in the past year. These patients subsequently were scheduled for an appointment to receive their exam.

Results: The initial survey given to providers yielded a 60 percent completion rate. The most cited reason for not completing a foot exam was a lack of monofilaments in the rooms. Initially, the clinic was at a 68% foot exam completion rate, which decreased to 60% three months after replacing the monofilaments and increasing visibility. Three months after the education session, the completion rate decreased to 59%. After PDSA three, the rate decreased to 55%.

Conclusion: Despite the interventions that have been employed, the percentage of documented foot exams continues to decline. The COVID-19 pandemic, time constraints, patient no-shows, and EMR difficulties may be contributing factors. Additionally, ensuring buy-in from clinic staff and having a champion in the clinic would be extremely beneficial. From the chart review, there were providers that had higher rates of non-completion compared to others. Therefore, it may be helpful to have targeted interventions for these specific providers.

Implementation of 2020 ADA Recommendations for the Initial Management of Overweight and Obese Pediatric Patients with New Onset Diabetes

Atima Huria, MS4, LINC Scholar (Presenting Author)
Jennifer A. Sutter, MD, Division Chief, ECU Pediatric Endocrinology
Kaitlin Hamilton, PA-C, ECU Pediatric Endocrinology
Mindy Saenz, RDN, LDN, CDCES, ECU Pediatric Specialty Care

Background: The 2020 American Diabetes Association (ADA) Standard of Medical Care in Diabetes for Children and Adolescents recommends that initial therapy for overweight/obese patients with new onset diabetes appropriately address metabolic derangements. The guidelines also suggest that, for a subset of patients, less intensive therapy initiated in the outpatient setting may achieve target HgbA1c. Historically, our center hospitalized most patients with new onset diabetes and initiated full basal/bolus (intensive) insulin regardless of initial labs and likelihood of Type 2 Diabetes (T2D).

Objective: We implemented a standardized protocol for the initial management of overweight/obese patients 10 to 17 years of age with new onset diabetes to align our practice with the 2020 ADA recommendations, with the goal of decreasing hospital admission rates and use of intensive insulin.

Methods: A treatment protocol was developed based on initial labs. The protocol was retrospectively applied to patients with T2D seen in clinic to determine the expected change in admission rates and use of intensive insulin. Beginning June 2020, Plan-Do-Study-Act cycles were utilized to implement the protocol prospectively, while monitoring admission rates at diagnosis and the percentage of patients initially managed by one of five treatment regimens defined by escalation of insulin therapy.

Results: Our retrospective review revealed a 67% admission rate at T2D diagnosis with 66% of patients receiving intensive insulin. In this cohort, the new protocol would have implied a reduction in admission rates to 40% and intensive insulin use to 20%. Following implementation of the protocol with adherence rates improving from 68% to 94%, the median quarterly admission rate between June 2020 and March 2022 was 53%, with 44% of patients receiving intensive insulin therapy. Preliminary data review suggests similar average HgbA1c levels between 7.7% to 8.5% for all treatment groups except for diet and lifestyle at the 6 - 9 month follow-up mark.

Discussion/Conclusions: Adherence to the protocol for admission at diagnosis has steadily increased. Overall, this had led to a decrease in admission rates to 30% and use of intensive insulin to 23% in the past quarter, approaching our aims. A higher rate of diabetic ketoacidosis, ketosis, and severe hyperglycemia at diagnosis during the project period likely impacted the results. Additional follow-up is needed to determine the impact of this protocol on short- and long-term diabetes control.

Establishing a Dental Home in a Timely Manner: Improving the Dental Referral Process of Pediatric Patients

Lavelle V¹, Wansi LB², Cotterill C², Webb MD², Tumin D¹, Higginson A¹

¹*Brody School of Medicine at East Carolina University*

²*East Carolina University School of Dental Medicine*

Background: The American Academy of Pediatric Dentistry, the American Dental Association, and the American Academy of Pediatrics recommend that children establish care with a dentist before their first birthday or within six months of the eruption of their first tooth. Routine dental care has been shown to decrease morbidity, mortality, and overall cost of care. The Baby Oral Health Program (BOHP) is a partnership between the East Carolina University (ECU) Pediatrics Outpatient Center (OPC) and the ECU School of Dental Medicine (SoDM) that established a direct referral process for children without a dental home. The specific aim of this study was to improve the percentage of patients referred through the BOHP who establish a dental home to 75% within 1 year.

Methods: Stakeholder input was sought through surveys and interviews to identify barriers to the establishment of a dental home. Process flow and fishbone diagrams were created to represent identified areas of improvement. Design cycles were created and implemented to target these defined areas. Data on BOHP referrals were retrospectively reviewed to determine the percentage of patients referred who scheduled a first visit with the SoDM clinic. Other measures included the turnaround time (days) between initial referral and contacting the patient via phone and appointment wait time (days).

Results: At baseline, 61% of BOHP referred patients established a dental home with ECU SoDM. Identified areas of improvement included increased usability of the referral form and improved provider and parent education on the referral process. Referral form shortfalls included the need for multiple patient phone numbers for follow-up and a Spanish version. At initiation of this project, 13/13 (100%) of attending physicians, 13/21 (62%) of pediatric residents, and 0/5 (0%) of medicine-pediatric residents surveyed were aware of the BOHP. To date, electronic medical record (EMR) technical difficulties and personnel turnover has made collection of design cycle data unfeasible.

Conclusions: Previous projects have described improved pediatric dental care compliance when dental clinics were co-located with medical practices. The process established by the BOHP is a potential model for areas where co-location is not an option. Working between disciplines has a unique set of challenges, including differing provider schedules and EMRs. In these scenarios, early development of reliable data acquisition methods is crucial to project success. In addition, locations with high provider turnover, like a teaching hospital, require structured education practices to maintain sustainability. These challenges are best met with strong communication and a shared mental model.

From Ambulance Bay to Emergency Bay: Efforts to Assess and Improve Utilization of STEMI Activation at Vidant Medical Center

Mark McAlister, MS4, Brody School of Medicine at East Carolina University
Roberto Portela, MD, FAEMS, FACEP, ECU Department of Emergency Medicine
Stephen Taylor, Training Specialist, ECU Department of Emergency Medicine

Introduction: Use of Emergency Medical Services (EMS) in the activation of hospital-based protocols is crucial in time sensitive scenarios. Early recognition of ST Elevation Myocardial Infarction (STEMI) is integral to improved outcomes in patient care. Studies have shown that pre-hospital activation of STEMI is associated with shorter “door-to-balloon” times in emergent percutaneous coronary intervention (PCI). Currently there remains a divide between the emergency prehospital systems and the emergency room itself at Vidant Medical Center (VMC). Both diagnostic accuracy and adequate communication mechanisms are necessary to bridge this gap between the two integral systems. In this study we aim to identify the barriers involved in delayed STEMI activation within VMC and seek to address barriers to activation within the Pitt County EMS System through improving electrocardiogram (EKG) diagnostic accuracy among EMS personnel and identifying challenges within the varying modes of communication between the hospital and incoming ambulances.

Methods: Improper activation rate was determined by matching hospital diagnosis and intervention to EMS run-chart logs. Data was pulled from Pitt County EMS and cross matched to patient records using their Health Account Record (HAR) for the encounter. Subsequently, we sought to identify the current rate of STEMI EKG transmission from ambulance to VMC Emergency Department.

Results: Of the files reviewed for patients with a diagnosis of STEMI in the hospital, data was pulled from December 2019 through October 2020. For Pitt County, there were a total of 35 cases with a diagnosis of STEMI who arrived by EMS. Five cases were incorrectly diagnosed in the field, bringing an improper activation rate to 14.29%. During a repeat analysis between June 2021 and November 2021, 42 cases were labeled as a STEMI; 17 cases were incorrectly diagnosed in the field, bringing an improper activation rate to 40.47%. Initial review of EMS to ED communication revealed a 3-minute delay between EKG submission and print-out at ED printer.

Conclusion: The results of this study are limited in large part by the sample size; however, represent the need for further assessment of EMS and its role within the larger health system. Our initial reviews suggest mixed results regarding diagnostic accuracy for STEMI using EKGs among EMS personnel. Our findings suggest that Pitt County EMS personnel may require additional reinforcing education to maintain adequate diagnostic accuracy. Further, communication between EMS personnel and the Emergency Department may be a limiting factor.

Optimizing Patient Throughput from the Emergency Department to the Intensive Care Unit

Christel Molnar; Dr. Jennifer Stahl

Background: Delayed transfer of critically ill patients from the Emergency Department (ED) to the Intensive Care Unit (ICU) can have devastating effects on patient treatment and outcomes including increase in length of stay and patient mortality.

Purpose: Our specific aim of this project was to decrease the time from admission orders to patient occupancy of an ICU bed to ≤ 30 minutes for patients admitted from the ED during a 4-month period of time. We implemented a “Just in Time” process for bed allocation for inpatient throughput for our Medical Intensive Care Unit (MICU) and established a “Two Beds Ahead” protocol at 7am and 7pm.

Method: We collected data on the time from ED arrival to MICU bed admit order, time to bed assignment for the MICU, and time to bed occupancy to the MICU.

Results: From PDSA cycle 1 to PDSA cycle 2, the time from bed request to assignment < 60 minutes improved from 63% to 76%, and 100% of patients had a bed request to assignment of < 120 minutes.

Conclusions: Implementation of these quality improvement processes decreased transfer times from the ED to the MICU, thus resulting in more efficient, cohesive, and organized patient health care.

Improving Self-Management of Healthy Weight Related Goals at the Pediatric Healthy Weight Clinic

Tejal Naik, BS. Medical Student at Brody School of Medicine

Suzanne Lazorick, MD MPH. Physician at the Pediatric Healthy Weight Clinic

David Collier, MD. Physician at the Pediatric Healthy Weight Clinic

Natalie Taft, MS, RDN, LDN, CCMS. Nutritionist at the Pediatric Healthy Weight Clinic

Introduction: According to the Center for Disease Control and Prevention, obesity affects one in five children and adolescents in the United States. With childhood obesity comes increased risk of other medical health comorbidities. Physicians are working with nutritionists to assist overweight children manage their weight by making lifestyle changes. These lifestyle changes can be complex and feel overwhelming for both the child and the family. Our quality improvement (QI) project is centered at the Pediatric Healthy Weight Clinic (PHWC) in Greenville, NC. It aims to improve self-management of chronic weight related health conditions, assisting pediatric patients reach their healthy weight goals by providing them with New Patient Self-Management Packets. Through this project we aimed that by July 2021, 100% of new patients at the PHWC will have documented receipt of a self-management packet in their charts. 75% of these new patients will report increased satisfaction in managing their new lifestyle changes.

Methods: This study was completed using a QI approach with four sequential PDSA cycles. The target population were new pediatric patients at the PHWC in Greenville, NC. In the first PDSA cycle, a retrospective chart review was performed to define the baseline that patients were not receiving any information to take home with them at their initial visit. In the second PDSA cycle established patients were interviewed through phone calls to see what they would have wanted in a self-management packet. Using patient feedback, a packet was created that included general information, energy balance, tips for talking about weight, physical activity goals, and nutrition. The third PDSA cycle was a chart review to see how many patients received the packets. Finally, the fourth PDSA cycle consisted of a patient survey collected to determine the usefulness of the packets.

Results: Through a patient survey of 14 patients over the course of 6 weeks, 80% used the notebooks with 75% finding the packets to be “very useful” in managing their healthy lifestyle goals.

Conclusion: QI methods facilitated an improvement in patient satisfaction by providing patients with a notebook to reach their healthy weight goals. This QI project can be adapted for any clinic in need of providing self-management support tools for their patients. Overall, due to time restraints, there was limited input regarding packet use and effectiveness. Further steps in this project includes full translation of all materials in Spanish and ongoing development of packet components to better support patient needs.

Standardizing Care of Cesarean Section Patients Using a Quality Bundle

Tulsi Patel¹, Elaine Henry², and James deVente¹

¹Brody School of Medicine at East Carolina University

²Vidant Medical Center

Background: Surgical site infection complicates almost 11% of cesarean deliveries, resulting in significant maternal morbidity with increased length of stay, readmission, and cost. Care of cesarean section patients at Vidant Medical Center (VMC) is currently not standardized, with variations in preoperative preparation and compliance with identified best practices. The objective of this study was to evaluate the impact of a quality care bundle on compliance with evidence-based interventions that reduce the risk of surgical site infection for cesarean section patients at VMC. The project aimed to improve the standardization of care during cesarean section deliveries by achieving 100% compliance in the quality care bundle in 50% of patients at Vidant Medical Center within 6 months.

Methods: This study assessed compliance with a cesarean section quality care bundle in a randomized sample of cesarean section patients at VMC over two years. The bundle intervention consisted of four elements, including delivery room temperature of greater than or equal to 77 degrees, administration of preoperative antibiotics, application of sequential compression devices, and vaginal preparation with antiseptic solution. The primary and secondary outcome measures were identified respectively as compliance with the complete quality bundle and compliance with each of the four elements in the quality bundle individually. Multiple Plan, Do, Study, Act (PDSA) cycles were employed to improve compliance with specific bundle elements over the study course, including hands-on education and the placement of visual cues in operating rooms.

Results: Over 27 months of data collection, 713 patients were randomly sampled to assess compliance with the quality bundle. At onset of the intervention, initial bundle compliance was 54.5%. In one year, this increased to 95.2%, which is a 75% improvement in the primary outcome measure. Over the following year, bundle compliance ranged from 55.6% to 96.3%.

Conclusion: We conclude that implementing a cesarean section quality care bundle improved overall compliance with evidence-based practices, thereby increasing standardization of care and reducing risk of surgical site infection for cesarean section patients at VMC. The PDSA cycles implemented sustainable tools that encouraged improved compliance with the quality bundle over the course of the study.

Improving Self-Reporting of At-Home Blood Pressure Measurements Using the MyChart Patient Portal: A Quality Improvement Process.

Team Members: Usman Saqib, MS4; Lacy Hobgood, MD, FACP, FAAP

Acknowledgements: Drillious Gay, RN, MSN; John Ross; Tracy Gibbs; Lisa Rodebaugh RN, BSN

Background. Obtaining blood pressure measurements from patients in the outpatient setting is a missed opportunity for providers and patients to share important clinical data that affects patient health and treatment management. The goal of this study was to provide patients with a new and readily accessible tool by which they could record and upload their blood pressure values to their electronic health record, MyChart.

Methods. The study was set in a combined outpatient Internal Medicine and Pediatric clinic associated with an academic medical center. Participants were patients of one attending physician and all of which had a diagnosis of hypertension. Our aim was to improve patient at-home blood pressure monitoring by 10% in the outpatient setting within two years by implementing educational and reminder interventions. The Plan Do Study Act method of quality improvement was used for this project. The preexisting EHR order set and interface were utilized to give participants access to input blood pressures through MyChart and allow researchers to monitor the data. Interventions involved teaching participants how to record and input their blood pressure values by navigating through the MyChart interface. We used various methods throughout subsequent PDSA cycles progressing from one-on-one in-person education, education paired with troubleshooting over the telephone, to finally an instructional packet with custom reminder labels.

Results. Nine months after implementing our first PDSA, we reached a 50% self-reporting rate for our first cohort of six participants. Our second and third PDSA's had self-reporting rates of 23% and 42% with cohort sizes of forty participants and twelve participants respectively.

Conclusion. Although reporting rates varied within each PDSA, we saw a consistent rise in self-reporting of blood pressures when plotted over time. Implementation of an at-home blood pressure self-reporting tool improved the number of patients presenting to the outpatient setting with an abundance of data readily accessible in the EHR. Our hope is that the increased availability of patients' blood pressures from home will allow clinicians to better monitor patients' vitals and optimize medication regimens. Additional work is required to increase availability, access, and ease of use so that all members of the care team, especially the patient, can benefit from this resource.

Medical Education & Teaching Distinction Track

Interprofessional Education (IPE) with Certified Nurse Midwives and Medical Students on the 3rd Year Ob/Gyn Clerkship: A qualitative review of medical student experience

Olivia Paige Campbell¹, Jill Sutton MD², Monica Horne CNM²

¹ Brody School of Medicine, East Carolina University, Greenville, NC, United States

²Department of Obstetrics and Gynecology, East Carolina University, Greenville, NC, United States

Background: As many academic practices move toward collaborative models and engage midwives as educators for medical student and resident training, there are no national standards or curricular expectations [4]. Although interprofessional care teams have become more prominent in practice, they are not yet an integral part of medical education. Furthermore, there is limited published research on medical students' perceptions of midwifery faculty or the midwifery model of care.

Purpose: This qualitative study aims to examine the impact of interprofessional education (IPE) between medical students and Certified Nurse Midwives during 3rd year obstetrics/gynecology clerkship.

Methods: A six question open-ended survey with is embedded in the 3rd year Obstetrics/Gynecology clerkship evaluation. The survey was first implemented during the 2019-2020 school year and was continuously collected through August 2021. Medical students in each cohort are currently required to spend at least one half-day with a Certified Nurse Midwife. Our study has an approved IRB exemption status and clerkship survey data from April 2019-Aug 2021 was used for this study.

Results: The study findings indicate that majority (~94%) of 3rd year medical students felt this IPE experience enhanced their educational experience. 72% of responses stated that this was an overall positive and educational IPE experience. 16% preferred more time working with CNMs in the clinical setting. 0% stated that this was a negative experience and 12% of participants gave no response. In addition, students were able to describe their perceptions of the midwifery model of care that correlated with the American College of Nurse-Midwives (ACNM) core competencies. 43% of responses favored the theme of "woman-centered, nurturing and holistic care throughout the childbearing cycle". 30% of students noted the benefits of having CNMs and an interprofessional healthcare team for patients and workflow.

Conclusion: Accomplishing the goal of interprofessional education requires the continuous development of interprofessional competency by health professions students, so that they enter the workforce ready for collaborative practice. This IPE study design demonstrated an overall positive impact on medical student education during the 3rd year Ob/Gyn clerkship. Therefore, we recommend medical educators to incorporate IPE within the curriculum for future research and to advance medical education training.

Keywords: Interprofessional education, midwives, medical education, medical student, ob/gyn

Incorporating Medical Student Teaching in the Pediatric Clerkship to Increase Subject Proficiency

Denise Elizondo, B.S.¹, Jared Barkes, B.S.¹, Mary Lenfestey, M.D.², Dimitri Tumin, Ph.D.²

¹East Carolina University Brody School of Medicine and ²Department of Pediatrics, East Carolina University Brody School of Medicine

Background: In the pediatrics clerkship at the Brody School of Medicine at East Carolina University, we have identified a need to increase NBME subject exam (shelf) scores to strengthen medical students' understanding of pediatric medicine and improve their readiness for the USMLE Step 2CK exam. We aim to improve aggregate shelf scores measured by cohort by implementing evidence-based peer-teaching interventions into the pediatrics clerkship.

Methods/Materials: A booklet containing 50 topics was distributed to 3rd-year medical students (Class of 2023) at the Brody School of Medicine at East Carolina University during the pediatric clerkship orientation for cohorts 4-6. Over the course of the clerkship, students were encouraged to prepare 5-minute presentations on the topics in the booklet to their supervising pediatrics resident and other students. At the end of the 8-week clerkship, students completed an anonymous paper survey on their participation in presentations and preparedness for their shelf exam. The Office of Data Analysis and Strategy (ODAS) provided the average NBME scores and corresponding percentile per cohort. The average NBME scores from previous cohorts were also collected to establish a baseline shelf exam performance. Standard statistical process control rules were used to determine special cause variation after implementation of project interventions. No individually identifiable data was collected.

Preliminary Results: Prior to the intervention, the baseline shelf mean was 78.5 and percentile 52. Cohort 4's mean and percentile were 77.2 and 43, respectively. In cohort 4, 4 out of the 11 students completed survey, with only 1 reporting having used the booklet and the remaining 3 providing suggestions to improve booklet experience. Cohort 5's mean and percentile were 78.5 and 48, respectively. In cohort 5, 9 out of 11 students completed the survey with 2 of the 9 respondents having used the booklet. Cohort 6's mean and percentile were 80.9 and 58, respectively. In cohort 6, 9 out of 15 students completed the survey with 5 of the 9 respondents having used the booklet. Reasons for not using the booklet, as reported by the students, were incongruent learning style or time commitment.

Conclusions: There is not enough data to analyze the effectiveness of the intervention. However, reasons for low participation since the booklet's introduction could be due to its elective use or unfamiliarity. Between the 4th and 5th cohort, efforts were made to increase participation, such as better informing teaching residents of the booklet, recruiting a third-year medical student to be a liaison, and sending a reminder midway through the cohort. Future efforts to improve participation include making booklet-use and peer-teaching mandatory and incorporating built-in time during the clerkship for peer-teaching.

Integration of Pathology Content into a First-Year Medical School Histology Course and its Impact on Student Performance: A Preliminary Report

Mitchell P. Jester¹, Morgan R. Beamon¹, Brady B. Buchanan¹, Philip J. Boyer², Ann O. Sperry³

¹Brody School of Medicine, East Carolina University, Greenville, NC, United States

²Department of Pathology and Laboratory Medicine, East Carolina University, Greenville, NC, United States

³Department of Anatomy and Cell Biology, East Carolina University, Greenville, NC, United States

Background: Medical school pre-clinical curricula consist of many components, but two that are extremely important are learning normal human anatomy and learning about pathologic variations. Traditionally, histology instruction has focused on teaching how organ tissue is supposed to look under the microscope and how to distinguish different organ systems based on their microscopic differences. Pathology instruction subsequently focuses on microscopic and macroscopic abnormalities. To excel in identifying abnormal organ system presentations, medical students must first master normal structure and function. Several medical schools have successfully integrated histology and pathology education in the undergraduate medical school curriculum.

Methods and Materials: The primary aim of this project was to integrate pathology content with histology instruction during a first-year histology course. Pathology topics considered to be high yield for future instruction and testing were derived from the United States Medical Licensing Exam content outline ([usmle.org/pdfs/usmlecontentoutline.pdf](https://www.usmle.org/pdfs/usmlecontentoutline.pdf)). As examples, emphysema, cardiac muscle hypertrophy, and vasculitis were incorporated into lectures discussing the normal histology of the lung, heart, and blood vessels, respectively. Students from the Class of 2023 and 2024 were surveyed regarding their perceptions of the integration of pathology into the histology course as they entered the basic pathology component of their curriculum.

Results: Participants were surveyed following completion of the histology course and 162 of 172 students completed the survey. A majority of students found pathology incorporation useful in that it provided a preview of pathology (71%), highlighted particular aspects of histologic structure (83%), provided clinical context and relevance for a histology topic (86%), and broke the monotony of looking at only normal histology (94%). The quantity of pathology material incorporated was considered about right by 61% while 32% felt more would have been appropriate. While 55% of students suggested leaving the volume similar for future classes, 38% suggested an increased amount of pathology content. When asked about additional pathology topics to integrate, 41% suggested neoplastic disease across the various organ systems.

Conclusions: Overall, students were satisfied with and found the pathology incorporation helpful to learning histology. Given the relatively small proportion of pathology content

introduced, it is uncertain whether any improvement in USMLE Step 1 or Pathology Subject Exam scores can be attributed to the integration of pathology topics. However, exposure to pathology material earlier in the curriculum allows for review of key pathology topics multiple times throughout their pre-clinical years and then spaced repetition longitudinally.

Identifying Differences in Medical Student Evaluations Between Pre-Pandemic and In-Pandemic Courses

Amanda Mathew, Dr. Hellen Ransom

Introduction: Evaluations provide important feedback for professors and administrators to understand the student learning environment and experiences.[1] The COVID-19 pandemic disrupted the learning environment, forcing the switch from in-person to online learning.[2] This study aims to identify the difference, if any, in student evaluations of courses at the Brody School of Medicine, before and during the COVID-19 pandemic.

Methods: Course evaluations were analyzed in the academic years pre-pandemic (2017-2018, 2018-2019) and in-pandemic (2019-2020, 2020-2021) for medical courses with in-person learning: M1 Ethics, M2 Ethics, M1 Foundations of Doctoring (previously M1 Foundations of Medicine and Doctoring I), M1 Neuroscience, M2 Foundations of Medicine, and Doctoring II. Data were provided by the Office of Medical Education and the Office of Data Analysis and Strategy.

Aggregated comments summarizing student evaluations were provided to protect student and faculty privacy. Comments were analyzed through a program (Sentimentr), which coded for valence shifters and prescribed a numerical value for each comment's positive or negative sentiment, with 0 representing neutrality.[3] The program-generated values were used to compare the pre- and in-pandemic course evaluations based on average sentiment.

Results: Each course's average sentiment ranged from 0.03 to 0.35 across 2017-2021. Each comment was also independently analyzed with extreme negatives (-0.67) and extreme positives (+1.12). Data was not statistically significant ($p = 0.64$, $\alpha = 0.05$).

Discussion: The COVID-19 pandemic did not have a significant effect on student learning environment and experiences noted in the courses' aggregated comments according to their average sentiments. This study may be limited by assessing the aggregated, not original, comments of the students. Comparing results across medical classes may also be a confounding factor. Future studies should be performed within the same medical class (pre- and in-pandemic) to identify if there is any difference in students' original and aggregated comments.

Citations:

[1] Moore DE. Assessment of Learning and Program Evaluation in Health Professions Education Programs. *New Directions for Adult and Continuing Education*. 2018;2018(157):51-64. doi:10.1002/ace.20268

[2] Caton JB, Chung S, Adeniji N, et al. Student engagement in the online classroom: Comparing preclinical medical student question-asking behaviors in a videoconference versus in-person learning environment. *FASEB BioAdvances*. 2020;3(2):110-117. doi:10.1096/fba.2020-00089

[3] Rinker, T. W. (2021). sentimentr: Calculate Text Polarity Sentiment. version 2.9.1.

<http://github.com/trinker/sentimentr>

Embracing Attention and Empathy Through Narrative Medicine in the Third Year Family Medicine Clerkship

Emmanuella Mensah, BA¹, William Miller Johnstone III, MD, PhD², and Todd Savitt, PhD³

¹Brody School of Medicine at East Carolina University

²Brody School of Medicine, Department of Family Medicine

³Brody School of Medicine, Department of Bioethics and Multidisciplinary Studies

Background: Narrative Medicine as a discipline has not been a fundamental aspect of the medical school curriculum at Brody School of Medicine. Rita Charon, MD, PhD at Columbia University called for the need for “effective medical practices to replace hurried and impersonal care with careful listening and empathetic attention”. With limited research across medical schools in the United States, there is a lack of concrete models to assess what students gain from such teachings. According to George Zaharias’ “What is narrative-based medicine?”, more research is needed to better define narrative medicine’s role and understand the specific skills required for practice. This study aims to cultivate attention and empathy through creative writing sessions and parallel charts to evaluate how they translate into student’s understanding of strengthening their therapeutic alliance with patients.

Methods: Students in the class of 2021 and 2022 rotated through the Family Medicine clerkship in twelve different cohorts. During this time, students participated in two creative writing sessions led by a family physician and a Bioethics professor who guided students through a series of reflective writing prompts. Students then completed parallel charts on two patients where they focused on aspects outside of their medical records. A 5-point Likert scale survey and qualitative survey were used to assess students’ perception towards these activities and rate how the sessions achieved its goals.

Results: The response rate was 71.5% (session one) and 78.2% (session two). 85.6% of students were not familiar with Narrative Medicine prior to the sessions. During the first session, students rated 3.2 (SD 0.90) on having adequate time to reflect during medical school, 4.35 (SD 0.66) on being empathetic, and 3.97 (SD 0.91) on influence on future practice. During the section session, students rated 4.01 (SD 0.94) on how their satisfaction of the parallel charts and 4.20 (0.88) on the influence on future patients. Upon theme coding, “empathy, vulnerability, understanding, and emotional” emerged. Students valued the parallel charts and the opportunity to reflect but felt the sessions were lengthy.

Conclusion: Though not surprising, not every student enjoyed the process. Although students rated themselves highly on being empathetic, these sessions allowed students to focus on their capacity to represent their experiences in a written manner. The results support the aim of the study and validate the worth of these sessions in helping students embrace empathy as it relates to their future patients. Another theme that emerged throughout the sessions was how students connected with one another which was not initially expected as group dynamics were not explored.

Identifying Medical Errors: An Interactive and Case-Based Workshop

Matthew Parrish, BS², Cassandra Bradby, MD¹, Jennifer Stahl, MD³

¹Assistant Professor, Department of Emergency Medicine, The Brody School of Medicine at East Carolina University

²Medical Student, The Brody School of Medicine at East Carolina University

³Assistant Professor, Division of Critical Care, Department of Internal Medicine, The Brody School of Medicine at East Carolina University

Background: Medical errors are unfortunately common and often go unrecognized. Recognizing errors is one step to mitigate the possible consequences and how to disclose errors to patients is learned through experience. Medical education often lacks experience in identifying and disclosing medical errors. We sought to create a workshop that provided participants the opportunity to examine, identify, and disclose medical errors through a case-based example.

Methods: We created a case-based workshop, centered on identification and disclosure of medical errors. Through didactics, video-simulation, and participant role play, participants were asked to identify and disclose errors to each other. Real-time feedback was provided from peers and facilitators. Pre and post-workshop surveys consisting of Likert-Scale items were collected. Likert-Scale results were analyzed using two sample t-tests with significance set at $P=0.05$.

Results: Twenty-eight fourth year medical students participated in this interactive case-based workshop. 96.4% of participants indicated that they had witnessed at least one medical error in their training, with only 14.3% being very comfortable or extremely comfortable identifying medical errors. After completion of the workshop, that percentage increased to 80.8% of participants indicating very or extremely comfortable identifying medical errors. Over 90% of participants gave a 4/5 or 5/5 response regarding the importance and usefulness of this session.

Conclusion: Well received by medical students, this feasible case-based workshop offers an opportunity to address an important part of medical training, identification and disclosure of medical errors. Important to their training, students felt this session helped prepare them for residency and their career moving forward.

Brody RISE: Evaluation of Program Goals

Keyur Patel, MS4, Medical Education and Teaching Scholar, Brody School of Medicine Milton Bond, MSA, Director of Brody RISE, Brody School of Medicine

Background: The Brody RISE Summer Program is a pipeline initiative offered through the Office of Diversity Affairs at Brody School of Medicine. The primary goal of the RISE program is to increase the supply of primary care physicians serving NC, improve the health status of citizens in eastern NC, and enhance the access of disadvantaged and minority students to a medical education. This study aims to evaluate whether the RISE program is on track to achieving its program goals. An important element in combating health disparities is to encourage those impacted by such inequalities to pursue a career in healthcare. There is limited data in the literature discussing design and impact of pre-college medical school pipeline programs and the rates that these students enter healthcare professional school. However, there is ample data describing the importance of a diverse health care workforce to improve outcomes in communities impacted by health disparities. These principles serve largely as the inspiration behind this project and a means for medical students to get involved with these efforts.

Methods: A single survey evaluating various aspects of the Brody RISE Summer Program was emailed to previous and current program participants (n=17). The survey involved two parts. Part A consisted of a Likert scale which assessed participant interest in pursuing STEM or healthcare related fields as a product of Brody RISE Summer Program participation. Part B consisted of open answer questions targeted at evaluating the program as a whole and student career interest. Analysis of part A included utilization of mean, standard deviation, and 95% confidence interval. Analysis of Part B utilized thematic coding which grouped responses according to the following themes: mentorship experience, shadowing experience, STEM, medicine/healthcare, personal development, medical student/staff, and program logistics. Additionally, a word cloud was utilized to highlight the program. In addition to the survey described above, aggregation of previous survey data related to the Brody RISE Summer Program was used in this study. Data from these surveys was similarly analyzed and incorporated as described above.

Results: 15 program participants responded to Part A only and 10 responded to Part A and Part B of the new survey. Response rate for Part A only was 88% and both Part A and B was 59%. Response rates for existing data was not able to be calculated. Recurrent themes yielded evidence of a fun, supportive, but challenging environment for program participants. 9 of 10 participants expressed that their desire to pursue STEM or healthcare related professions was strengthened by the RISE program. 9 of 10 participants state that they have experienced new opportunities because of the RISE program. Many of them citing connections with physicians and shadowing opportunities. Hands on experience was a common theme when assessing for participants most favorite or best experience with the program. Additionally, discussion about the timeline and journey from junior high and high school to professional school was highly valued.

Discussion: These results support the conclusion that the Brody RISE Summer Program is guiding participant interest in STEM and healthcare professions. Part A of the survey yielded data that suggests program participants feel adequately supported by the Brody RISE Summer Program. Additionally, these data suggest that most participants were interested in STEM or healthcare related professions prior to their participation in the program but have strengthened that interest through their participation in the program. Involvement in student organizations or volunteerism related to STEM or healthcare does not appear to be significantly affected by participant involvement in the Brody RISE Summer Program. With regards to the objective of this study, the data indicates that participants of the RISE program are developing increasing interest specifically in the healthcare field. When asked about long-term goals, most students express interest in pursuing college education within the next 5 years and medical education within the next 10 years.

Medical Education Journal Guidelines for Educational Quality Improvement Submissions

Amber Priester, BS¹; Dmitry Tumin, PhD²; David Eldridge, MD²

¹Brody School of Medicine, East Carolina University, Greenville, NC

²Department of Pediatrics, Brody School of Medicine, East Carolina University, Greenville, NC

Introduction: Quality improvement (QI) is a natural fit for many challenges in medical education, yet a recent literature search identified fewer than a dozen peer-reviewed articles applying QI methodologies to medical education. This lack of published work describing educational QI projects is likely multifactorial; at the journal level, a lack of clear guidance may discourage the submission and publication of such work. We hypothesized that most medical education journals lacked specific guidance for manuscripts using QI methodologies and encouraged authors of empirical articles to use hypothesis-testing research methods.

Methods: Included journals were identified using the MEJ-24, a list comprising a core set of 24 medical education journals. One journal had since ceased publication and was excluded from this study. Author guidelines of the 23 included journals were reviewed by two independent evaluators, with discrepancies resolved by a third author. Qualitative and quantitative data was recorded regarding the presence or absence of four parameters: explicit mention of QI methodology or QI projects, specific reporting requirements for QI work, a specific submission category for QI projects, and specific recommendations for quantitative project design or data analysis.

Results: Of the 23 included journals, 4 (17%) explicitly mentioned QI projects or methodologies, including one journal that provided specific reporting requirements for QI projects, and one journal that had a submission category specific to QI work. Of the 23 included journals, 4 (17%) had specific recommendations for quantitative data analysis, including 3 of the journals that explicitly mentioned QI. Guidelines tailored to QI submissions included reference to the SQUIRE-EDU guidelines (3 journals), special formatting and article structure requirements (1 journal), and discussion of ethical approval specific to QI projects (1 journal). None of the journals specifically disallowed submission of QI projects.

Conclusion: Despite the increasingly recognized importance of QI in medicine, our study found that few medical education journals currently provide guidance to authors wishing to submit QI work for publication. We believe this is a barrier to the publication and recognition of QI work within the medical education community. We encourage author guidelines to explicitly mention QI work, reference published checklists for QI work, and consider the creation of journal submission categories specific to QI.

Research Distinction Track

A Scoping Review on Transcranial Stimulation of the Right Temporoparietal Junction and Effects on Social Cognition

Ke'Asia Craig¹, Kathrin Rothermich², Moritz Dannhauer³, Atticus Toriello⁴, Madeline Funke⁵, Haven Harris⁶

¹ Brody School of Medicine, East Carolina University, USA, ² Department of Communication Sciences and Disorders, East Carolina University, USA, ³ Department of Psychiatry and Behavioral Sciences, Duke University, USA, ⁴ Department of Psychology, East Carolina University, USA, ⁵ Department of Communication Sciences and Disorders, East Carolina University, USA, ⁶ Department of Communication Sciences and Disorders, East Carolina University, USA

Background: The right temporoparietal junction (rTPJ) is thought to be closely related to theory of mind (ToM) and cognitive empathy, two processes linked to the ability to attribute others' mental states, such as beliefs and intentions. Transcranial direct current stimulation (tDCS) has been used to explore the role of the rTPJ in social cognition. Although high-level evidence exists regarding the rTPJ and theory of mind, there is minimal research determining the scope of evidence of transcranial stimulation of the rTPJ and social cognition.

Objective: This scoping review aimed to systematically map and explore the available literature on the effects of non-invasive brain stimulation of the right temporoparietal junction on social cognition.

Methods: We conducted a systematic scoping review of qualitative studies following PRISMA guidelines. Scopus, PubMed, Web of Science, Embase, PsycINFO, and the Cochrane Library were searched for publications that explored non-invasive stimulation of the temporoparietal junction. Inclusion criteria included articles that were quantitative research that explored non-invasive stimulation of the temporoparietal junction. Studies were not excluded based on publication date. Two reviewers screened articles at the title and abstract level and at full text. In addition, multiple reviewers extracted data that were analyzed descriptively to map the available evidence.

Results: The search yielded 4206 articles, of which 46 full-text studies were assessed for eligibility, with 34 studies included in the study. Twelve studies were excluded based on criteria. Overall, the identified studies were heterogeneous in measurements of social cognition. Measures of social cognition examined included moral judgments, deception, empathy, sociocognitive ability, verbal associative thought, and egocentric perspective. Over 80% [27/32] of articles focused on the rTPJ specifically. Almost two-thirds of the articles utilized tDCS [20/32]. The most used type of stimulation was both anodal and cathodal [17/32]. The role of the rTPJ based on the results of studies examined ranged from the mental rotation of objects to moral decisions.

Conclusions: In many of these studies, there was an increase or decrease in task performance depending on the type of stimulation used and the duration of stimulation. However, studies

often used tasks that have not been peer-reviewed and utilized small sample sizes. Future studies should attempt to replicate these findings in larger sample sizes with different stimulation approaches to the rTPJ. Based on the results of this scoping review, the right temporoparietal junction does have a significant role in various aspects of social communication, including deception, face-discrimination, and perception of self and others.

Consumer Intravenous Vitamin Therapy: Wellness Boost or Toxicity Threat?

Sahil Dayal and Kathryn M. Kolasa

Background: Intravenous vitamin therapy (IVVT) has become increasingly popular in recent years promising to cure or improve a variety of health problems or infuse “wellness.” Patients and consumers have intravenous vitamins or other nutrients and fluids infused into their arms outside the hospital setting in medical spas, hydration rooms, integrative medicine, and concierge primary care practices. The IVVT “menu” options include but are not limited to mixes containing vitamins C and B12, glutathione, electrolytes, and saline. In the United States, the intravenous administration of nutrients is considered drug or parenteral nutrition. In this article, we describe what we learned while trying to answer a question of a patient contemplating an IVVT treatment at a retail store.

Methods: We first gathered information to do a systematic review of the topic. However, our literature search yielded 155 articles consisting mostly of case reports or self-reports. Thus, we expanded our search, utilizing Google, talking to local IVVT providers, and discussing the topic with health care colleagues.

Results: As with oral vitamins, IVVT has numerous beneficial claims. However, both are listed as dietary supplements by the Food and Drug Administration on labels for dietary supplements, thus not requiring factual or scientific evidence to support said claims. Most IVVT is directed towards hangover cures. In a systematic review of hangover cures, IVVT was not mentioned. The benefit of an IV administration of fluids, vitamins, and minerals is the speed, and the bioavailability of the nutrients is 100% in some instances. The “Myers’ Cocktail” is a popular mix seen at many IV spas, toting many curative effects on various pathologies. These are all non-statistically significant, only anecdotal case reports. Some concerns and risks of IVVT include use of scarce resources—using IV hydration solutions, a prescription medication—for unproven purposes, such as hangovers and colds, over established medical needs. The most common risks in receiving traditional IV therapy include phlebitis, extravasation, air embolism, hypervolemia, and infection. There is also the concern of toxicities of the various fluids, electrolytes, minerals, and/or vitamins found within these IVVT concierge menu options.

Conclusion: There is insufficient evidence to conclude there is benefit from these expensive services provided often without the knowledge of the person's primary care physician but there is a possibility of harm.

Efficacy of Transdermal Lidocaine in the Treatment of Acute Musculoskeletal Pain in the Emergency Department

Katayoon Dowlatshahi, MS⁴¹; Sami Getahun, MD²; Hyunjeong Lee, MD²; Kori Brewer, PhD²; Jennifer Stahl, MD²

Author Affiliations: ¹Brody School of Medicine, ²Department of Emergency Medicine, East Carolina University, Greenville, NC

Background: Musculoskeletal pain is a common chief complaint in the Emergency Department (ED), with non-steroidal anti-inflammatory drugs (NSAIDs) prescribed as the initial form of treatment. NSAIDs alone may not provide adequate pain relief, encouraging physicians to seek alternatives that exclude opioids. Transdermal lidocaine is a popular alternative in the ED, with analgesic properties that can be localized to the source of pain without producing the systemic side effects of NSAIDs. The objective of this study is to determine whether treatment with transdermal lidocaine in addition to ibuprofen in patients presenting to the ED with acute musculoskeletal pain will result in greater improvement of their pain scores and fewer follow-up visits compared to treatment with ibuprofen alone.

Methods: This prospective, open labeled, randomized controlled trial involved 17 patients who visited the ED at Vidant Medical Center with a chief complaint of acute musculoskeletal pain (\leq 7 days duration) that was isolated to one body part. While 10 patients were randomized to receive ibuprofen as control (PO 800 mg), 7 patients received the transdermal lidocaine patch (4% Lidocare Pain Relief Patch) plus ibuprofen (PO 800 mg). Pain scores were measured using a Numerical Pain Rating Scale (ranging from 0 to 10) at baseline and at discharge. Upon discharge, patients were prescribed their corresponding treatment arm medication for 3 days. Between 48 to 72 hours after discharge, patients were contacted to determine their final pain score, medication compliance, follow-up visits, and any other analgesics used. The data obtained and changes in pain ratings over time were analyzed using ANOVA, one sample t-test, and paired t-test.

Results: Data analysis from the 17 patients showed a decrease in average pain scores by 2 points in the control group (\pm 2.8) compared to 1.6 points (\pm 0.9) in the lidocaine patch group ($p=0.17$). There was no clinically significant difference in mean pain scores between the control group and the lidocaine group at baseline (6.7 ± 1.9 vs. 7.4 ± 1.9 ; $p=0.46$) or at discharge (4.1 ± 2.9 vs. 5.6 ± 1.9 ; $p=0.26$).

Conclusion: While the lidocaine patch plus ibuprofen treatment arm did not show statistically significant improvement in pain scores when compared to ibuprofen alone, there was a less variable reduction in pain scores possibly indicating more consistent pain reduction.

Racial Differences in Stage IV Colorectal Cancer Molecular Profiling and Mutation Rates

Tyler P. Hinshaw, MS;^a Yuanyuan Fu, MA;^a William D. Irish, PhD;^{a,b} Alexander A. Parikh, MD, MPH;^a and Rebecca A. Snyder, MD, MPH^{a,b}

^aDepartment of Surgery, Division of Surgical Oncology, Brody School of Medicine at East Carolina University, 600 Moyer Boulevard, Greenville, NC 27834

^bDepartment of Public Health, Brody School of Medicine at East Carolina University, 600 Moyer Boulevard, Greenville, NC 27834

Background: Colorectal cancer (CRC) is the third most common and third most fatal cancer in the United States. Despite advances in multimodal therapy for CRC, racial disparities in mortality persist. Molecular testing for microsatellite instability (MSI), KRAS mutation, and BRAF mutation are recommended by the National Comprehensive Cancer Network for all patients diagnosed with stage IV CRC, as these mutations dictate treatment options and are associated with worse outcomes. The primary study aims of this study were to: evaluate differences in molecular testing rates over time by race and measure the incidence of tumor mutations by race in patients with metastatic CRC.

Methods: A retrospective cohort study was performed of all adult patients with stage IV CRC (2008-2018) identified within the cancer registry of a large, regional health system. Demographic/clinical characteristics were collected through primary data abstraction of the electronic health record (EHR). Molecular profiling results were obtained directly from Caris Molecular Intelligence[®] and EHR. Trends in molecular profiling and mutation rates by race were assessed using locally weighted smoothing scatter plot-smoothing curves and binary multivariable logistic regression model. Socio-demographic and clinical characteristics as well as molecular profiling and mutation rates are summarized by race as counts and percentages and compared by the chi-square test.

Results: 383 patients were included; 40.5% (n=155) Black and 59.5% (n=228) White. Significant increases were observed in MSI, KRAS, and BRAF testing rates during the study period ($p < 0.0001$). The odds of testing over time increased more significantly in Black compared to White patients for both MSI testing [White: OR 1.26 (95%CI 1.12-1.41), Black: OR 1.69 (95%CI 1.41-2.02), $p = 0.005$] and BRAF testing [White: OR 1.42 (95%CI 1.26-1.62), Black: OR 1.89 (95%CI 1.51-2.36), $p = 0.027$]. An increase in KRAS testing over time was observed for both cohorts and was independent of race ($p = 0.58$). Mutation rates did not differ by race; KRAS (Black 55.8% vs. White 45.6%, $p = 0.13$) and BRAF (Black 4.8% vs. White 10.0%, $p = 0.33$).

Conclusion: Within a large, regional health system, molecular testing rates in patients with metastatic CRC increased significantly following NCCN guideline changes for both Black and White patients. Black and White patients who underwent molecular testing had similar rates of MSI, KRAS, and BRAF mutations.

15-deoxy-Prostamide J₂ Induces PERK-IP₃-Receptor Calcium Signaling and Mediates Mitochondrial Permeability Transition Pore Opening in Melanoma.

Daniel A. Ladin¹, Margaret M. Nelson², Catherine Colonna¹, Jacques Robidoux³, Kelsey Fisher-Wellman², Rukiyah Van Dross-Anderson³

¹Department of Medicine, Brody School of Medicine, East Carolina University

²East Carolina Diabetes and Obesity Institute at East Carolina University

³Department of Pharmacology and Toxicology, Brody School of Medicine, ECU

Melanoma is the deadliest form of skin cancer in the United States. Recent FDA-approved therapies for melanoma have increased patient survival. However, new or optimized therapeutic approaches are still needed to improve treatment outcomes. 15-deoxy- $\Delta^{12,14}$ -prostamide J₂ (15d-PMJ₂) is an investigational small molecule that induces ER stress-mediated apoptosis selectively in tumor cells. In addition, 15d-PMJ₂ significantly reduces melanoma growth *in vivo*. The goal of this study was to investigate mechanisms underlying the antitumor activity of 15d-PMJ₂. We found that the ER stress sensor, PERK, was required for 15d-PMJ₂-induced apoptosis. PERK activation triggered the release of ER-resident Ca²⁺ through an IP₃R sensitive pathway. Increased calcium mobilization led to the accumulation of Ca²⁺ in the mitochondria followed by the induction of the mitochondrial permeability transition pore (mPTP) and the deterioration of mitochondrial respiration. Finally, we demonstrated that electrophilic double bond located within the cyclopentenone ring of 15d-PMJ₂ was required for its activity. Taken together, the present study identifies PERK/IP₃R/mPTP signaling as a mechanism of 15d-PMJ₂ anti-melanoma activity.

Characterization of Immune Checkpoint Inhibitor-Related Cardiotoxicity in Lung Cancer Patients from a Rural Setting

Justin D. McCallen, Melissa Y.Y. Moey, Anna N. Tomdio, Lauren Vaughan, Abdul R. Naqash, Cynthia Cherry, Blase A. Carabello and Paul R. Walker

Vidant Medical Center/East Carolina University, Greenville, North Carolina

Background: Immune checkpoint inhibitor (ICI)-related cardiotoxicity (iRC) is uncommon but can be fatal. There have been few reports of iRC from a rural cancer population and few data for iRC and inflammatory biomarkers.

Objectives: The purpose of this study was to characterize major adverse cardiac events (MACE) in ICI-treated lung cancer patients based in a rural setting and to assess the utility of C-reactive protein (CRP) and neutrophil-lymphocyte ratio (NLR) in the diagnosis of iRC.

Methods: Patients with lung cancer treated with ICIs at Vidant Medical Center/East Carolina University (VMC/ECU) between 2015 and 2018 were retrospectively identified. MACE included myocarditis, non-ST-segment elevated myocardial infarction (NSTEMI), supraventricular tachycardia (SVT), and pericardial disorders. Medical history, laboratory values, pre-ICI electrocardiography (ECG), and echocardiography results were compared in patients with and without MACE.

Results: Among 196 ICI-treated patients, 23 patients (11%) developed MACE at a median of 46 days from the first ICI infusion (interquartile range [IQR]: 17 to 83 days). Patients who developed MACE experienced myocarditis (n = 9), NSTEMI (n = 3), SVT (n = 7), and pericardial disorders (n = 4). Ejection fraction was not significantly different at the time of MACE compared to that at baseline (p = 0.495). Compared to baseline values, NLR (10.9 ± 8.3 vs. 20.7 ± 4.2 , respectively; p = 0.032) and CRP (42.1 ± 10.1 mg/l vs. 109.9 ± 15.6 mg/l, respectively; p = 0.010) were significantly elevated at the time of MACE.

Conclusions: NLR and CRP were significantly elevated at the time of MACE compared to baseline values in ICI-treated patients. Larger datasets are needed to validate these findings and identify predictors of MACE that can be used in the diagnosis and management of ICI-related iRC.

Potential Benefits of Brief Daily Meditation on Pain Levels and Opioid Use In Patients with Neurological Impairment

Stephen Orr¹, William Guiler², Barbara Tibbs³, Rita Gillis PhD³, Hannah Florida MD³, Kori Brewer PhD¹, John Norbury MD¹

¹Brody School of Medicine at East Carolina University, Greenville, NC

²East Carolina University Honor's College, Greenville, NC

³Vidant Medical Center, Greenville, NC

Background: While meditation has demonstrated efficacy in the management of chronic pain, few studies have explored its utility in patients with chronic pain associated with neurological impairment. Patients in an inpatient rehabilitation facility (IRF) with neurological impairment provide an ideal population to study the benefits of meditation as an alternative or complement to opioids for chronic pain. The objective of this study was to determine the feasibility of using smartphone-based daily meditation to improve pain and decrease opioid use in patients with neurological impairments admitted to an IRF.

Design: This was a single center, randomized clinical trial using historical controls. 24 patients with neurological pathologies, including spinal cord injury, stroke, and traumatic brain injury were enrolled upon entering the IRF. The meditation app *Insight Timer* was used to deliver daily 10-minute meditations to enrolled participants. Participants were matched to control subjects by age, sex, race, length of stay, and impairment code. Self-reported daily pain scores (0-10) were taken for each patient. Unpaired t-test was used to compare the average pain score and average PRN opioid frequency between study subjects and historical control patients. Average pain scores and PRN opioid frequency are reported with confidence intervals. Patients' perception of meditation as a means of pain management was also recorded in pre- and post-intervention surveys. Paired t-test was used to compare pre- and post-study confidence in brief daily meditation as an adjunct to pharmacologic therapy.

Results: 54 patients entering IRF were approached for inclusion with 24 meeting inclusion criteria and consenting. Of these 24 participants, 20 completed the 5-day meditation minimum, and 16 of those were enrolled in the pain group. 4 patients meeting inclusion criteria did not report chronic pain and were excluded from analysis. The average age of the 16 study participants was 53 years old. Pain scores averaged over the course of the patients' IRF stay were 3.21, 95% CI [2.32, 4.1] for study participants compared to 4.33, 95% CI [3.49, 5.17] for historical controls ($p = 0.083$). A power analysis was performed indicating that a minimum of 35 subjects would be required for meaningful effects to be detected. These same groups were compared for average daily PRN opioid frequency: Meditation group 0.709, 95% CI [0.082, 1.34]; historical control group 1.205, 95% CI [0.569, 1.84] ($p = 0.278$). Survey data showed participants were "very" likely to continue using the app (4.2/5), and "completely" enjoyed the daily meditations (4.8/5). Post-study perception that brief daily meditation could reduce the need for pain medicine showed mean confidence of 4/5 compared to pre-study confidence of 3.1/5 ($p = 0.024$).

Conclusion: Brief daily meditation delivered via a smartphone app is an inexpensive and easily reproducible approach to pain management in an inpatient setting. Results from this pilot study show brief daily meditation to be a promising method of pain management and a popular addition to traditional rehabilitation for patients in recovery from neurological impairment.

Placement Criteria for Improved Fiducial Tracking in Stereotactic Ablative Radiotherapy for Treatment of Lung Tumors.

Akash R. Patlolla BS, Duy M. Huynh BS, Ethan Patel, Kunj Patel, Sunil Sharma PhD, Mark Bowling MD, Hyder Arastu MD, Andrew Ju, M.D

Introduction: Lung cancer continues to be the leading cause of cancer-related deaths in the United States. Stereotactic ablative radiotherapy (SABR) is a treatment option for patients with inoperable lung tumors that employs surgically implanted fiducials to track tumors during the breathing cycle. However, many treatments are hindered due to poor fiducial tracking from a variety of potential errors. These errors are often thought to occur due to undesirable inter-fiducial distances. Currently, there is a paucity of data exploring the specific relationship between relative fiducial location and success in fiducial tracking.

Methods: An IRB approved retrospective review was performed on patients receiving robotic SABR for lung tumors at our institution from 2016 to 2019. Fiducial geometries were obtained with the Velocity contouring software and MATLAB. Chi-Square, t-test, and Mann-Whitney-U tests were completed using MedCalc.

Results: 28 patients had fiducial centroid data available for geometric analysis. Among these patients, tracking errors were found to be over-represented in cases where fewer than 3 fiducials were tracked. The most common of these errors were Rigid Body Errors (RBE) (60.2%) and Spacing Errors (37.3%). RBEs are thought to occur when inter-fiducial distance is large, causing lung expansion to distort the “rigid body” outline created by fiducials. Spacing errors occur when fiducials are too close together. Spacing error treatments had a shorter average minimum inter-fiducial distance versus non-spacing error treatments (1.0cm vs 1.7 cm respectively, $p=0.017$). RBE treatments had a longer average maximum distance versus non-RBE treatments (4.0 cm vs 3.0 cm, $p=0.022$). Both errors appear to be minimized when inter-fiducial distance is between 2 and 3 cm.

Conclusion: Our data suggests that specific placement criteria can be devised to help limit these two most common sources of error by maintaining inter-fiducial distance between experimentally determined guidelines. This may, in turn, help increase fiducial tracking and, ultimately, the fidelity of SABR treatment.

Adaptation of a Modified Diet Quality Index to Quantify Healthfulness of Food-Related Toy Sets

Jacqueline R Poston, BS Rachel E Watkins, Stephanie Jilcott Pitts, PhD, Virginia C. Stage, PhD, RDN, and Suzanne Lazorick, MD, MPH

Pretend play is a type of imaginative play that is necessary to build various skills of development in young children. Pretend play often involves food-related toy sets that are available in preschools and childcare facilities. However, the nutritional quality represented in the toy sets currently on the market is unknown. The objectives of this cross-sectional study were to (1) examine the construct validity of an adapted modified Diet Quality Index (aDQI) as a measure of the healthfulness of food-related toy sets for young children (3-8 years) and (2) examine the healthfulness of food-related toy sets available on the market.

A standardized online search was used to identify toy sets (n = 50) from ten retailers. An aDQI score (range 0 - 50) was determined for each toy set. Results showed that there was no significant difference in aDQI scores between retailers ($p = 0.7982$). Mean aDQI score was 28.7 (SD = 6.1) and mean price \$25.46. Regression analyses demonstrated a positive association between aDQI score and percentage of dairy, refined grains, protein, vegetables, and fruit and inverse association with percentage of desserts, sugar-sweetened beverages, and total number of servings. Toy sets demonstrated a high prevalence of protein (32%) and refined grains (22%), higher percent vegetables than fruits (19% versus 7%). They contained a low percentage of desserts (7%), sugar-sweetened beverages (0.94%), and whole grains (0.17%). Toy sets contained more protein and fewer fruits than recommended.

The aDQI score demonstrates construct validity to objectively assess the healthfulness of food-related toy sets. There is opportunity for toy manufacturers to make changes to improve the healthfulness in toy sets for young children, and future research can explore the impact of food-related toy sets on young children's nutrition behaviors

CNS Vital Signs (CVS) Performance and Sports-Related Concussion (SRC) Recovery in High School Athletes

Ahmed Samy, B.S.¹, Megan Ferderber, M.D.², Doyle M. Cummings, PharmD²,
Lisa Hager, MBA²

¹ East Carolina University Brody School of Medicine

² Department of Family Medicine, East Carolina University Brody School of Medicine

Background: Since there is limited evidence on the role of CVS to determine recovery from SRC in high school student-athletes, the purpose of this study is to explore the clinical impact on Return-To-Play (RTP) and evaluate associations with demographic factors and CVS results.

Methods: Retrospective cohort study at an academic sports medicine clinic with the following selection criteria: (1) diagnosed with a concussion, (2) injured between January 2016 and December 2019, (3) 13-19 years old, and (4) an athlete within the county school system. 302 student-athlete health records were reviewed. The main outcome measure (time-to-completion of RTP) was associated to the outcome variables of demographic factors (age, gender, academic performance, sport played, documented learning disability) and CVS results (performance, test domains). Statistical evaluation required the independent samples t-test and the bivariate correlation test.

Results: Of the 302 student-athlete records reviewed, 62 qualified for inclusion. Athletes were excluded based on the selection criteria. For 65% of athletes, RTP completion was delayed due to failed CVS testing. Three domains (visual memory, verbal memory, simple reaction time) contributed to 52% of failed CVS test results. 37% of athletes failed due to one abnormal test domain. There was no significant association with any of the selected demographic factors.

Conclusion: CVS testing often prolongs RTP beyond the time of clinical improvement. Certain CVS domains are more commonly failed and there is no association between demographics and CVS performance.

Service-Learning Distinction Track

Addressing Housing Insecurity in A High-Risk Obstetric Clinic

Louisa Appiah-Agbenyega, MS ¹, Karlene Cunningham, PhD²

¹Brody School of Medicine at East Carolina University, Greenville NC

²Department of Psychiatry and Vice Dean of Diversity and Inclusion, Brody School of Medicine at East Carolina University, Greenville, NC

Background: According to the American College of Obstetrics and Gynecology (ACOG) practice guidelines, screening for social determinants of health (SDOH), including housing, can impact mother/baby health outcomes at the individual and population level. The primary purpose of this project is to implement a standard of practice that improves screening for housing insecurity in pregnant populations and improve clinical and administrative resources for patients. The project's aim in the high-risk obstetric clinic is to identify the current usage of the screening tool for housing insecurity and increase the usage and identification of housing insecure patients by 50% at the end of the calendar year.

Methods: The project was executed by utilizing a quality improvement framework. The various measures involved in executing the project were process, baseline, outcome, and interventions. The process measure determined progress by obtaining monthly de-identified patient summaries from the clinical social worker at the beginning and end of the project, including challenges or success with housing placements for clinic patients. A baseline was measured by the number of housing referrals to social work in a month without any interventions. The outcome measure of the project was to increase the social work referral of patients experiencing housing insecurity at the new-OB visit and 6-12 months after pregnancy. The outcome measure highlighted the difference in trends after implementing a new screening tool. The screening tool used was the sample screening tool for social determinants of health shared by ACOG in the practice guidelines, and the Boston Health Leads Social Needs Screening Toolkits.

Results: During the 1-month preintervention period, six patients with unique housing needs were identified and referred to the clinical social worker. During the 1-month intervention period, one patient was identified. During the intervention period, an observation that emerged was a complete self-identification of unique housing needs to the social worker prior to clinical staff contact.

Conclusion: There are unique housing needs presented in the high-risk obstetric clinic population. The clinical staff's referrals to the clinical social worker captured the patients who needed the services the most. However, over one month, the paper screening tool yielded fewer but more comprehensive results necessary to impact clinical practice in the clinic. The next steps of the project include exploring the utilization of the new screening tool over a more extended period and other standardized ways to capture patients with housing needs.

Identifying and Addressing the Social Determinants of Health that Affect Patients at a Community Dental Clinic

Helina Gan, BS; Julianne Yuziuk, BS; Ji Lim, DMD; Tom Irons, MD

Background: The World Health Organization defines the Social Determinants of Health (SDOH) as “conditions in which people are born, grow, live, work...[that] are mostly responsible for health inequities- the unfair and avoidable differences in health status.” This project addresses the common social determinants of health that carry both medical and dental consequences to ensure the best possible health outcomes for patients. The medical care management position involves developing partnerships with local service resources, screening for patients in need of referral, and effectively linking patients to these resources and ensuring follow through.

Methods: Patients at a community dental clinic complete an initial survey screening for food insecurity, housing instability, transportation difficulty, etc. using the PRAPARE survey. The case manager engages with patients who screen positive and provide additional information about community resources and opportunities to link to these organizations. After 4 weeks, care managers follow up with patients to ensure needs are being appropriately and to check in on their health goals.

Results: Out of 489 screened patients, more than half screened positive for one or more identified social determinant. Forty patients have been connected to local resources and 11 patients met their set health goal.

Conclusion: The results of the study emphasize the need to screen patients for SDOH and offer opportunities for community resources at every health service interaction, including dental clinics.

Improving Care for the Most Underserved: A Novel Approach to Social Determinants of Health and Integrating Behavioral Health in a Homeless Shelter Clinic

Ryan Hatfield, Duy Huynh, Atima Huria, Austin Rice, Maudia Ahmad, Marissa Carraway MD

Brody School of Medicine at East Carolina University

Introduction: Greenville Community Shelter Clinic (GCSC) is a student-run free medical clinic serving the homeless population of Greenville, NC. In 2019, GCSC leadership aimed to better address patients' unmet mental healthcare needs. To achieve this goal, leadership established behavioral health consultants as part of the clinic's standard operation. Behavioral health consultants, (BHCs), were clinical health psychology doctoral program students who participated in a 6 month-long community rotation at GCSC. BHCs provided brief assessments, consultations, and interventions to patients with identified behavioral health needs.

Methods: Clinic data and survey results are stored on the HIPAA compliant database, RedCap. A retrospective analysis of this de-identified data was completed. Criteria included patients who received care at GCSC. Patients were screened for depression and anxiety using the peer reviewed PHQ2 and GAD2 screening tools. Patients who were screened positive were seen by a BHC who after further assessment provided brief interventions and referral to community resources. Surveys also assessed patient demographics and social determinants of health. The University and Medical Center Institutional Review Board (UMCIRB) determined this review was non-human research and received IRB exemption status on 1/25/2022.

Results: From June 2019 to March 2020, 209 encounters with 83 unique patients were completed during 46 clinics. 43 patients were shelter residents, and 40 were community walk-ins. A BHC was involved in 76 (36%) of these encounters and helped facilitate 42 referrals to community resources. Between January and March 2020, 39 patients completed 55 SDOH screening tools which resulted in 26 PHQ2 and 49 GAD2 positive screenings. Of those patients, 20 (51%) were seen by a BHC, 17 (43.5%) received a consultation, 13 (33%) received referrals to community resources, and 3 (7.6%) received brief interventions.

Conclusion: Mental health screening and referral rates to community resources increased after the implementation of the BHC role. The novel survey tool elucidates the social determinants of health affecting the patient population as well as the positive impact the clinic has on the shelter residents and the community. This model may be reproducible on a larger scale and could significantly improve the quality of mental health care in free clinics across the country.

Development and Institution of PhysioCamp: Providing a Community Resource

Holly Ingram, MPH;¹ Stephen Charles, PhD¹

¹ Brody School of Medicine, East Carolina University, Greenville, NC, USA

Introduction: Money, time, transportation, connections, and confidence are just a few of the barriers that exist to becoming a doctor. PhysioCamp is a nonprofit that aims to address these barriers and provide resources to foster future healthcare workers. To accomplish this, PhysioCamp is structured around three groups: K-12 students; pre-health undergraduate students; and graduate students in the healthcare field.

Methods: Since 2018, PhysioCamp has held hundreds of hours of K-12 age-appropriate sessions, which include virtual discussions on healthcare topics and in-person hands-on activities with anatomic models and simulation equipment. Pre-health students took on volunteer roles or additional responsibilities as year-round virtual interns. The role of graduate students included leadership of the sessions and oversight of volunteers and interns. For the past five classes, Brody Service-Learning Distinction Track scholars have worked with PhysioCamp to ensure continuity of leadership and partnership within the local Greenville, NC community. First and second year medical students lead the in-person sessions, and transition to virtual leadership in their third and fourth years of schooling.

Results: Periodic assessments of K-12 students, parents and volunteers are performed to audit the impact of the sessions. Results from K-12 student and parent surveys showed increased interests in the healthcare field and increased exposure to unfamiliar healthcare topics. Survey results from undergraduate and graduate volunteers highlighted the importance of small group learning and hands-on activities to the success of the sessions.

The internship program was added in 2019 to aid in long term retention and mentoring of pre-health students. Since the start of the program, 99 interns have been onboarded, 67 of whom are still active within PhysioCamp. Interns reported the increased value of mentoring, advising and appreciation of unique interactions with medical students. Many interns have now entered graduate school in healthcare fields, such as physician assistant and medical school.

Conclusion: Promoting early interest and early mentorship contribute to a student's academic success and chosen career path. PhysioCamp provides longitudinal health science exposure from kindergarten to graduate school. Interns and graduate students also gain experience in leadership and mentorship. Sessions are a beneficial resource to the community and act as a place for K-12 and undergraduate students to cultivate their academic interest with mentors in the field.

Nutrition Matters: A Conscious Approach when Managing Patients with Mental Illness

Ethenyeri Maganga, Brody School of Medicine; Dr. Irene Pastis, ECU Department of Psychiatry and Behavioral Medicine

Background: In the treatment of various mental illnesses, patients are prescribed psychiatric medications that can contribute to weight gain and metabolic syndrome. For example, antipsychotics have an adverse effect of metabolic syndrome. Additionally, mood stabilizers and antidepressants can also contribute to weight gain. These adverse effects can increase the patient's risk of developing diabetes, cardiovascular disease, and other life-threatening illnesses. To combat these effects, our multidisciplinary team addressed how nutrition was approached in the Behavioral Health Unit at Vidant Medical Center in Greenville, NC. By educating patients in the unit and in clinic about making healthier choices during hospitalization and providing them with resources to continue making nutritious choices once discharged, we aimed to decrease the negative physical effects of their medication regimen.

Methods: The study included 15 participants receiving inpatient psychiatric treatment in the Behavioral Health Unit. For 6-weeks, the participants a weekly, 40-minute class called class called "Nutrition Matters". During the class, participants learned the major food groups, how to prepare healthy snacks, and were also given a handout of local healthy food resources in our community as well as a recipe booklet containing ingredients, prices, and directions for three healthy meals and a snack. Before the classes began, participants were given a short questionnaire that asked about their baseline health knowledge and access to healthy foods. After the classes, the participants are given another questionnaire asking again about their health knowledge and their perceived benefit of the class.

Results: Participants were chosen by the physicians working in the Behavioral Health Unit based on their willingness to participate in the class. Participants who were not taking psychiatric medications that promote weight gain were excluded from the study. Before the class, 11 out of 15 participants were aware of the main food groups. The same number of participants were aware of nutrition food labels and how to read them. Finally, before the survey, 6 out of 15 participants reported difficulty accessing food. After the survey, all 15 of 15 participants reported being knowledgeable on the main food groups. Also, 10 out 15 participants reported they would make healthier decisions regarding food selection.

Conclusion: Given the education, proper tools, and a multidisciplinary approach, patients can benefit from information on how to make healthier decisions to prevent the adverse metabolic effects of their psychiatric medication regimen.

Promoting Mental Health Awareness and Supporting Culturally Competent Behavioral Health Care of Migrant and Seasonal Farmworkers in Eastern North Carolina

Natalie Malpass, Brody School of Medicine, Dr. Robin Tutor-Marcom, NC Agromedicine Institute

Background: Despite the emergence of mental health as a leading topic of concern for healthcare providers and public health organizations, there remain significant disparities among residents of Eastern North Carolina (ENC). Among the most underserved of ENC's population are migrant and seasonal Farmworkers. Many of these migrant farmworkers participate in the H-2A Temporary Visa Program, as North Carolina consistently ranks in the top ten states with the highest number of enrollees (Larson, 2000). Eastern North Carolina is home to more H-2A participants and non-H-2A farmworkers than other regions of the state, though a total population estimate is difficult to assess (NCFHP). Although ENC farmworkers are significantly underrepresented in the literature, a 2012 study revealed that as many as 52% of migrant and seasonal farmworkers living in Eastern North Carolina reported depressive symptoms and 16% reported symptoms consistent with anxiety (Crain 2012). These results may be skewed due to participant mistrust and researcher bias, and further culturally competent study is necessary. Contributing factors to poor mental health status may include cultural, social, or legal barriers, separation from family members, occupational and housing stressors, limited social support, and lack of access to adequate mental health care.

Project methods: This longitudinal Service-Learning project was conducted in association with the NC Agromedicine Institute. The project was established to develop a comprehensive list of mental health resources available to ENC farmworkers, create informative tools to be shared with lay health workers and community partners, and create and disseminate health care provider education modules with regards to the unique mental health challenges faced by ENC farmworkers. Project deliverables were peer reviewed by researchers and leaders in farmworker outreach.

Conclusions: The information collected during this project reflects the lack of behavioral health care infrastructure for migrant and seasonal farmworkers, but also the growing emphasis on research and intervention. Community partners, researchers, and advocates are working to encourage routine mental health screenings and provide appropriate follow up.

Potential Impact:

This project is intended to be a call to action. Future implications of this project include community-based participatory research with ENC farmworkers to gain further insight into perceived mental health status and barriers, as well as targeted mental health interventions and programming.

Contraception Educational Kits: An Educational Resource on Contraception Efficacy

Rashieda Pugh, Allison Lemon MD

¹Brody School of Medicine at East Carolina University, Greenville NC

²East Carolina University Pediatric Outpatient Clinic, Greenville, NC

Background: In North Carolina, the 2018 birth rate was 18.7 per 1,000, a figure that exceeds the national rate of 17.4 per 1,000. Despite a plethora of research about contraceptive safety and efficacy in the United States, little is known about how physicians' comfort with contraceptive counseling affects patient's utilization of contraceptives. The purpose of this educational project is to improve contraceptive education given to adolescents at East Carolina University (ECU) Pediatric Clinic through the use of a learning tool that would improve provider comfort with contraceptives. A contraceptive toolkit was created to aid in patient education. Each kit contained a Nexplanon model, oral contraception packs, Nuvaring model, Intrauterine Device applicator, birth control effectiveness chart, and take-home contraception brochures. Monthly educational sessions were established for the residents at the ECU Pediatric Clinic to discuss the utilization of the contraception kits.

Methods: As part of routine pre-clinic education, residents received hands-on teaching experience with the contraception kits. Anonymous electronic surveys were administered after the educational session to evaluate physician's comfort with providing contraception education and likelihood of using contraception kits during patient encounters. A smart phrase and ICD-10 code was included in the contraception kits to be used by providers in the patient's electronic medical record when the contraception kits were used.

Results: Fifteen post-education resident surveys were collected. Sixty percent of residents rated their comfort discussing different contraception methods at a level 4/5 (5 very comfortable) after the education session. Additionally, 73% of physicians rated the likelihood of using the contraception kits during visits 5/5 (5-very likely).

Conclusion: The contraceptive kits and educational sessions aided in the improvement of resident's comfort when counseling about different contraception methods. Future opportunities include conducting a quality improvement project which would aim to increase documented use of the contraception kit from 0% to 50% over 3 months and sustain for 12 months. The use of the smart phrase. Contraception kits and ICD-10 code Z30.09 would be used to track the use of the contraception kits during patient encounters.

Implementation of Hypertension Resources & Counselors to Decrease Rates of Pediatric Hypertension in African American children – a comprehensive approach to the challenges African-American patients from rural communities' face in medical treatment/care managing pediatric hypertension.

Jasmine S. Robinson and Hostensia Beng-Ongrey, MD
Brody School of Medicine, East Carolina University
Brody School of Medicine, Department of Pediatrics, Division of Pediatric Nephrology

Background: Hypertension is one of the top five chronic diseases in children and adolescents, occurring in 2% to 5% of all pediatric patients. Hypertension in childhood is a major risk factor for hypertension in adulthood. Studies show a strong link between diet, exercise, and other lifestyle factors that all contribute to the challenges of managing blood pressure at a young age. Pediatric hypertension is more prevalent in non-hispanic African-American patients than that compared to Caucasian patients. This is especially witnessed in areas/communities of low socioeconomic status and medically-underserved communities. Chronic pediatric hypertension is managed by physicians within the nephrology specialty; due to the link between chronic hypertension and underlying kidney malfunction/disease. Within the ECU Pediatric Nephrology division, over 60% of patients with pediatric hypertension identify as African-American children. The goal of this project is to provide a tool or useful resource to the pediatric minority community, who frequent ECU Physicians for their healthcare needs.

Methods: This study will involve assessing the overall effectiveness of implementing hypertension educators/resources within the ECU Pediatric Nephrology clinic. It is our goal to improve the percentage of blood pressure normalization within our clinic from 38% to greater than 50% over a 6-month timeframe. The first component involves the development of additional counseling and hand-outs provided by clinical staff during new and follow-up chronic hypertension visits. Additional information on lifestyle modification involving the incorporation of the DASH diet was included in the after-summary visit as well as displayed in clinic rooms for patients during these visits. We also planned to incorporate a Hypertension Clinic Day where the majority of patients seen are those who have a diagnosis of chronic hypertension.

Anticipated Results: We expect to analyze qualitative measurements that show improvement in rates of hypertension in all patients, particularly the largest cohort of patients being African-American children. In terms of overall blood pressure normalization, we anticipate rates to continue to normalize following the implementation of all aspects of the study, including the proposed incorporation of HTN counselors.

Conclusion: Culture and social determinants affect how messaging about hypertension are perceived by both children and their families. Within this study, we have been able to provide a new, culturally, competent resource to all clinic patients who have a diagnosis of chronic hypertension during new and follow-up visits. Our ultimate goal is to continue to identify connecting socioeconomic factors that link higher rates of hypertension to certain populations

and move toward the incorporation of hypertension educational material through the use of hypertension counselors.

WE CARE Project- Reducing Socioeconomic Disparities in Health at Pediatric Visits

K'Shylah Whitehurst, M4, SLDT Scholar, Brody School of Medicine, Shaundreal Jamison, MD, Drew Baker, MD, Allison Lemon, MD, Hannah Morris, MA, Clinical Research Coordinator, Amber Davis, LCSW, ECU Department of Pediatrics

Background: WE CARE (Well child care, Evaluation, Community Resources, Advocacy, Referral, Education) is a national, multi-institution social determinants of health screening and referral intervention. The social determinants of health (SDoH) are the conditions in which people grow, live, work and age.¹ The five main components of the SDoH are healthcare access and quality, education access and quality, social and community context, economic stability, and neighborhood/build environment.¹ WE CARE represents an innovative step towards acknowledging patient's unmet social needs and enhancing their health and development. Families that have a need, and want help are provided with a community resource booklet to increase access to resources. The booklet which has been uploaded into the EHR, list out community resources in Pitt County, such as food pantries, to help meet their needs. The overall aim of this project is to improve accessibility of resources to our patients with the ECU Pediatric Outpatient Clinic.

Methods: My role in the WECARE project was to help develop booklets containing the list of community resources. Majority of the resources were discovered through an online coordinated care network, known as NCCARE360. NCCARE360 is a statewide online tool that contains information for every county to connect residents with specific needs to the corresponding organizations. Within the database there were resources for childcare, transportation, parent employment, parent education, utility assistance, and housing resources. The contact information, and address were put into a template before being sent to the principal investigator (PI). Once the resource pages were approved by the PI they were translated and uploaded into EPIC. Patients completed surveys to determine if they would benefit from additional resources.

Results: Evaluation of the data from the implementation of the WE CARE project will not be complete prior to May 2022. To date, over 300 patients have completed the screener surveys and 69 patients have been enrolled as participants.

Conclusion: The community resource booklets will provide patients with greater access to resources within Eastern North Carolina. Future directions with the project could include creating an improved screener survey, as well as the addition of resources within neighboring counties that patients may travel from including Martin, Greene, or Lenoir counties.