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Abstract Book

Acknowledgments

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Health System Transformation & Leadership Distinction Track

Improving documentation of Pediatric Early Warning Score (PEWS) in the Electronic Health record (EHR)

Authors: Titilola Babatunde, BS; Shadman Memarian, MD; Edith Reyes Alvarado, MD

Introduction: It has been observed that many children who deteriorate quickly or unexpectedly in hospital settings share similar features up to 24 hours before the event, which can serve as "track and trigger tools". The Pediatric Early Warning Score (PEWS) can be used to quickly identify and respond to patients who may be at risk of deterioration. At our facility, we discovered that there is a lack of timely documentation of PEWS despite auto-calculation of scores by EHR, further leading to a lack of clear communication with pediatric providers.

Aim Statement: To improve documentation of PEWS in the EHR for patients 2-24 months old admitted to the inpatient pediatric unit at ECU Health Medical Center by 20% within 6 months.

Methods: This QI study was conducted at a 197-bed pediatric hospital at a tertiary medical center with approximately 7,000 admissions yearly. A multidisciplinary team was created to improve PEWS education and documentation. Prior to intervention, 15 medical charts per month of patients were reviewed. Five PDSA cycles were conducted, with data reviewed for 15 patients each month. Balancing measures included rate of transfer to PICU floor and number of code blue calls to pediatric floor.

Results: We documented an overall improvement in PEWS documentation. The percentage of PEWS filed per vital sign frequency increased from 25% to 52%, peripheral vascular assessment checked at least once per shift increased from 2% to 95%, reassessment of peripheral vascular exam in the setting of elevated PEWS increased from 0% to 27%, and nursing to provider communication increased from 11% to 22%.

Discussion/Lessons Learned: We successfully improved timely documentation of PEWS in the medical record by providing education to all staff and providers and adding PEWS as part of nursing orientation. Limitations included high turnover of nursing staff and rotating nursing students who were unaware of the protocol. To ensure ongoing compliance with the documentation, we will be working closely with our PEWS nurse champions to conduct routine reminders and audits.

Conclusion: Our project highlighted the improvement of PEWS documentation after implementation of PEWS education for nursing staff and providers, along with routine reminders and assessment of barriers to compliance.

Improving Care for People with Diabetes through Optimization of Clinic Resources

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Affiliations: Brody School of Medicine, East Carolina University

Background: In Eastern North Carolina, a largely rural region with a high prevalence of poverty and significant portion of residents belonging to minority groups, various measures among primary care physicians have been employed to improve care provided to patients with diabetes. One clinic in particular, the ECU Adult and Pediatric Healthcare (“Med-Peds”) clinic has been heavily involved in quality improvement projects. Over the past few years, several QI projects aimed at improving care for diabetes have been attempted in this clinic. These measures have aimed to lower proportions of patients with an A1C above a certain goal or have involved improving the average A1C for a group of patients. Unfortunately, many of these efforts have been unsuccessful. Our project aimed to increase the proportion of physicians that generate Diabetes Report each month and utilize it to refer patients to clinic resources at ECU APHC. Our Aim Statement was “By 10/31/2023, over 50% of physicians in clinic will create a report every month and over 40% will utilize the report”.

Methods: To complete this project, the team developed an automated “survey” with two simple questions that asked physicians if they had generated a report the month before and if they utilized the report to refer patients. This “survey” acted as a baseline measure of physician usage of report prior to our intervention. At submission, users were prompted to generate a Diabetes Care Report for the present month. This prompt was delivered to institutional email addresses of physicians (attendings and residents) for several months in a row.

Results: Our preliminary results showed that initially less than 20% of total physicians in clinic generated a report each month prior to project initiation. Around 10-20% of physicians in clinic utilized the report. While percentage of respondents that self-identified report generation increased, the percentage of physicians responding also decreased in the same timeframe.

Conclusions: Overall, almost all physicians who generated a report utilized the report. Initial lessons learned indicated the need to further educate physicians on the usefulness and ease of generating the report and methods for how to use it. We determined that response rate to the survey is an important measure. We also found that one must be cautious with automated prompts or reminders to not contribute to reminder fatigue.

Standardizing Skill Development Discussions with Adolescents with Diabetes to Improve Transition from Pediatric to Adult Care

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Introduction: Adolescents with chronic illnesses experience a critical shift in responsibility as they transition from pediatric to adult care. If unprepared, the decreased supervision can lead to non-adherence to regimens and a decline in disease control. Currently, our Pediatric Diabetes clinic does not have a standardized process to help adolescents with diabetes attain skills important for successful transition to adult care.

Aim statement: We aimed to increase the percentage of 14-year-old patients seen in the ECU Health Pediatric Diabetes Clinic who have a documented conversation about skills required for transition to 20% with documentation of the attainment of one new skill per adolescent in 12 months.

Methods: PDSA cycles were utilized to implement a standardized process to document a discussion about skills needed for transition and reassessment of skills attained.

1. Diabetes team surveyed to identify skills important for transition (12/2023)
- 2a. Development of a skills questionnaire with 5 broad categories with associated skills.
- 2b. Dot phrase developed for documentation of discussion (1/2023)
3. Introduction of the questionnaire to clinic workflow (1/2023)
4. Narrowing to a single skill (Planned)

Results: In January and February, 50% of 14-year-old patients had a skills discussion documented. This percentage slowly declined to 11% by September. Of the 20 patients that chose a skill to work on, only 3 had documentation of attainment at a follow up visit (15%). The most common skills chosen to work on were calling in refills or scheduling a follow up appointment requiring knowledge of their provider's name and phone number.

Discussion: While we quickly reached our aim of a documented skills conversation in 20% of 14-year-olds in clinic, this was not sustained. The questionnaire was too broad and lengthy to be efficiently integrated into clinic workflow. In addition, patients did not consistently attain new skills despite the conversations. We now plan to focus on a single skill: placing the clinic number into their cell phone.

Conclusion: While the transition from pediatric to adult centered care remains a critical step for adolescents with chronic diseases, successful attainment of specific skills may require multiple focused discussions with adolescents over time.

Improving Parental Knowledge of Medically Complex Neonates Through Scheduled Conferences

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Background: Effective communication is a component of family-centered care and is especially important in intensive care settings. In this Neonatal Intensive Care Unit (NICU), there were reports of parental dissatisfaction attributed to incomplete or inconsistent information from the medical team. NICU team members thus designed a Quality Improvement (QI) project to establish planned family conferences at 10 days and 1 month of life for 50% of the medically complex neonates admitted to the NICU within one year.

Methods: A QI team instituted a system to implement scheduled family conferences between the medical team and families of medically complex neonates. A neonatologist or neonatology fellow conducted the family meetings. Team members collected baseline data monthly over four months, twelve months for the intervention period and three months to monitor sustainment. The team tracked measures over time using statistical process control charts and used surveys to assess perceived burden on families and the medical team.

Results: The QI team successfully scheduled conferences for greater than 80% of eligible families with an 86% completion rate of scheduled conferences on both days 10 and 30, exceeding project goals of 50%. Majority of the surveyed families were satisfied with the meetings and only 2% of surveyed parents found meetings burdensome compared to 14% of physicians.

Conclusion: The QI team successfully established planned family conferences and sustained those changes for 3 months. Identifying a sustainable method for meeting scheduling and proper preparation for conferences including the use of checklists were instrumental in the project's success.

Implementing Food Insecurity Screening in a Level IV Neonatal Intensive Care

Authors: Kevin Travia, BSPH, John A Kohler, Sr, MD, MBA, FAAP, Uduak S. Akpan, MD

Background: Food Insecurity (FI) negatively affects children's acute and chronic health outcomes. The American Academy of Pediatrics (AAP) recommends using a simple two-question screening questionnaire for FI screening in pediatric patients.

Objective: To achieve 95% screening for food insecurity (FI) amongst the families of neonates admitted to a level IV Neonatal Intensive Care Unit (NICU) within 9 months.

Study Design: From July 2021 to March 2022, a multi-disciplinary team implemented FI screening over three improvement cycles. Interventions included adding a standardized screening tool to a routine social work interview. We tracked project measures over time using statistical process control charts, and a survey for balancing measures.

Results: We achieved our goal of 95% screening rate amongst the families of 651 neonates admitted to the NICU during the project duration. We identified FI in 6.75% of the screened families, 91% of whom we referred to programs for additional resources. Four social workers surveyed reported no additional burden from FI screening; however, for families screening positive, there was additional time to compile community resources totaling 15-30 min.

Conclusions: Identifying FI is crucial due to associated poor health outcomes. Screening can be successfully implemented in a pediatric critical care setting using the AAP 2-question survey.

Improving Transition to Adult Care in Children & Youth with Special Health Care Needs

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Background: The transition from pediatric to adult-centered care is a critical phase, especially for children and youth with special health care needs (CYSHCN). The American Academy of Pediatrics, American Academy of Family Physicians, and American College of Physicians outlined Six Core Elements to guide health care professionals in improving the ability of youth and young adults to manage their own health as they transition to an adult approach. Having a structured Health Care Transition (HCT) process has been shown to significantly improve population health, patient experience, and health care utilization. The aim of this project is to achieve a 50% completion rate of HCT specific documentation of all youth and young adults 12 to 24 years of age with special health care needs at ECU Adult and Pediatric Healthcare Clinic (APHC) by January 2025.

Methods: This Quality Improvement project carried out multiple Plan-Do-Study-Act (PDSA) cycles to increase conversations around HCT guidelines among patients, families, and clinic staff. PDSA cycle 1 involved developing a single page transition care document based on the six core elements which was then publicly displayed in the clinic. After the first cycle, we saw a 5% increase in transition related social documentation. The second PDSA involved creating a clinic checklist to track that clinic staff was aware of the transition care document. After cycle 2, we saw a 10% increase in documentation. The last PDSA cycle involved emailing clinic staff about regularly updating transition care related information under the social documentation tab on EPIC.

Results: Social documentation of 127 youth and young adults 12 to 24 years of age at ECU APHC were observed. Before PDSA cycles were implemented, the percentage of patients with proper social documentation was less than 20%. After three PDSA cycles, the transition related social documentation was updated for more than 30% of youth and young adults 12 to 24 years of age.

Conclusion: This project highlights the importance of multidisciplinary collaboration in enhancing transition care. This is an ongoing project to improve transition care coordination for patients with special needs as they transition from pediatric to adult centered care in the ECU APHC by incorporating the six core elements of HCT.

Medical Education & Teaching Distinction Track

A Delphi Consensus Study for the Development of a Specialty-Focused Ultrasound Curriculum for Fourth-Year Medical Students

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Background: The use of Point-of-Care Ultrasound (POCUS) in undergraduate medical education and its adoption by multiple specialties has significantly grown in the past decade. While many specialties have specific POCUS or ultrasound related competencies outlined in the Accreditation Council for Graduate Medical Education (ACGME) milestones to reflect this, there are currently no Entrustable Professional Activities (EPA) to reflect this in undergraduate medical education. Therefore, the training across medical schools is variable without a universally adopted curriculum. A high-yield specialty-focused ultrasound curriculum targeted toward fourth-year students allows students to hone ultrasound skills prior to residency while also combating the inherent challenges associated with an undergraduate ultrasound curriculum. This study aims to propose specialty-specific POCUS milestones defining the most relevant exams, procedures, and pathologies for fourth-year medical students to know before entering their intern year as determined by residency directors of the respective specialties.

Methods: Residency program directors were contacted by email at all accredited Emergency Medicine, Family Medicine, Internal Medicine, Surgery, Pediatrics, and Obstetrics and Gynecology programs. A public list of email addresses available on the Accreditation Council for Graduate Medical Education (ACGME) website was used. Consensus among the residency directors was established using a three-round Delphi Method. A response of ≥ 4 on a 5-point Likert Scale indicated consensus among responding residency directors.

Results: Round one yielded responses from 11 EM, six FM, eight IM, and 10 OB-GYN residency directors. All three rounds of data collection were completed by five EM, two FM, two IM, and five OB-GYN residency directors. EM directors reached consensus for five exams, nine pathologies, three ultrasound-guided procedures, and two ultrasound-assisted procedures. OB-GYN directors arrived at consensus for seven exams, eight pathologies, and no ultrasound-guided or -assisted procedures. FM directors reached consensus for 14 exams, eight pathologies, two ultrasound-guided procedures, and two ultrasound-assisted procedures. IM directors indicated consensus on five exams, 12 pathologies, one ultrasound-guided procedure, and seven ultrasound-assisted procedures. There were only three respondents for Pediatrics with limited input and no respondents for Surgery, so these specialties were excluded.

Conclusion: A collection of specialty-focused POCUS milestones have been determined and agreed upon by current residency directors in their respective fields. These competences can be incorporated within a transition to residency course or a longitudinal POCUS course based upon the anticipated specialty. To our knowledge, this is the first attempt to standardize an undergraduate medical education POCUS curriculum across four specialties with inclusion of exams, pathologies, and procedures.

Alignment of Statistical Content in Medical Licensing Exam Study Resources with Statistical Methodology in Medical Research

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Background: Medical trainees express difficulty with interpreting statistics in clinical literature, despite formal and co-curricular biostatistical education. We compared statistical methodologies employed in biomedical literature with biostatistical content in licensing-exam study materials to elucidate educational gaps.

Methods: In this bibliographic content analysis, we compiled a stratified random sample of 72 issues from three major medical journals during 2023 and reviewed articles involving original data analysis. We recorded all discrete statistical methods and concepts detailed in the methods section of the articles, and in three commercial licensing exam study resources. We created a unified list of discrete methods or concepts to define overarching domains and mapped each method to a domain to determine that domain's presence in each resource or article.

Results: From 273 journal articles and 3 study resources, we retained 1057 unique keywords that were mapped onto 20 domains. Statistical error, significance, power analysis, and group comparisons of categorical data were high-frequency domains among the articles. None of the study resources discussed methods to compare non-normally distributed data between groups, to fit generalized linear or multilevel regression models, or to analyze weighted data, and inconsistently covered linear regression, survival analysis, meta-analysis, and handling of missing data. Overall, 63% of articles included methods from domains not covered in any study resource.

Conclusions: Medical licensing exam preparation does not reflect the breadth of contemporary statistics in biomedical research. Future interventions should expand medical students' understanding of study protocols and complex data manipulation.

Agreement Between Medical Student Self- Assessment and Faculty Rating of a Simulated Suturing Task

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Background: Suturing is a fundamental skill required of medical students but is typically not learned until students enter the clinical space. While learning to suture, a medical student's self-assessment may be inaccurate relative to assessment by a physician. The purpose of this study was to determine if students' self-rating of suturing skills learned in a self-directed manner was concordant with physicians' ratings.

Methods: Second year medical students were provided a video-based, self-directed curriculum, and a suture pad to use over eight weeks. Each student rated their performance of placing three simple interrupted sutures using a Global Rating Sheet. Video recordings of the students' performance were then assessed by three faculty using the same rating scale. The students' self-assessments were compared to the average of faculty assessments to test for bias, correlation, and concordance.

Results: A total of 71 students participated in the study. Three faculty raters had strong agreement (ICC 0.91). No bias was evident between total performance scores based on student self-rating (25 ± 6) or the mean faculty ratings (26 ± 6 , $p=0.353$), but correlation between faculty and student total ratings was low ($r=0.26$).

Conclusion: Students' self-ratings were weakly correlated with faculty ratings, but were not systematically biased, suggesting the presence of both under- and over-estimation of suturing skill. Students were unable to accurately assess their own performance in suturing without faculty instruction.

Research Distinction Track

Pan-tissue Mitochondrial Phenotyping Reveals Lower OXPHOS Expression and Function Across Cancer Types

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Abstract: Targeting mitochondrial oxidative phosphorylation (OXPHOS) to treat cancer has been hampered due to serious side-effects potentially arising from the inability to discriminate between non-cancerous and cancerous mitochondria. Herein, comprehensive mitochondrial phenotyping was leveraged to define both the composition and function of OXPHOS across various murine cancers and compared to both matched normal tissues and other organs. When compared to both matched normal tissues, as well as high OXPHOS reliant organs like heart, intrinsic expression of the OXPHOS complexes, as well as OXPHOS flux were discovered to be consistently lower across distinct cancer types. Assuming intrinsic OXPHOS expression/function predicts OXPHOS reliance in vivo, these data suggest that pharmacologic blockade of mitochondrial OXPHOS likely compromises bioenergetic homeostasis in healthy oxidative organs prior to impacting tumor mitochondrial flux in a clinically meaningful way. Although these data caution against the use of indiscriminate mitochondrial inhibitors for cancer treatment, considerable heterogeneity was observed across cancer types with respect to both mitochondrial proteome composition and substrate-specific flux, highlighting the possibility for targeting discrete mitochondrial proteins or pathways unique to a given cancer type.

Mitochondrial Respiration in Bladder Mucosal and Detrusor Tissues from Aged Female Mice

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Background: Aging-associated bladder dysfunction is a common pathology that impacts quality of life. Little is known about the pathophysiology of the aging bladder and whether impaired mitochondrial respiration plays a role in aged bladder dysfunction. Our objective is to quantify behavioral bladder function and mitochondrial respiratory physiology in young and old female mice. (54)

Objective/Hypothesis: We hypothesize that mitochondrial respiratory capacity will be decreased in the bladders of aged female mice who present with decreased bladder function. (23)

Methods: Young (10week, n=5) and old (2year, n=10) female C57BL/6NJ mice underwent void spot assays (VSAs) to assess *in vivo* bladder function. Animals were placed on filter paper in cages to void for 4hrs. Bladders were weighed, separated into detrusor and mucosal layers, and placed into an Oroboros Oxygraph-2K machine to analyze respiratory capacity. Two substrate conditions were used: 1) Pyruvate/Malate (complex I) and 2) Succinate/Rotenone (complex II). These substrate additions were followed by phosphocreatine titration (energetic challenge) as well as FCCP titration (uncoupler). We evaluated mitochondrial changes in oxygen flux normalized to dry tissue weight, as well as respiratory conductance. (101)

Results: VSAs showed no difference in *in vivo* bladder function between old and young mice when normalized to body weight. There was no difference in oxygen flux across substrate conditions in the detrusor from old bladders. In both complex I and II driven conditions, mucosal mitochondrial oxygen flux in old bladders appears elevated. Additionally, mucosal respiratory conductance in the presence of pyruvate/malate is increased with age. (66)

Conclusion: No difference was seen when comparing the overall *in vivo* bladder function of young and old mice. There does appear to be increased mitochondrial respiratory flux in the mucosal tissue of old mice. Additionally, respiratory conductance is increased in the mucosal tissue of aged bladders in complex I driven conditions. Proteome assessment needs to be completed in order to further identify protein content differences between old and young bladders. (70)

Stage IV Melanoma Patients Treated with Radiation and Immunotherapy: Survival Rates and Analysis of Abscopal Effect

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Introduction: The role of radiation therapy in metastatic melanoma is being re-evaluated with the emergence of immunotherapy. Radiation leads to the generation of tumor antigens that may be combined with immune checkpoint inhibitors to prolong survival. In addition, radiation may reduce tumor size both at the site of radiation and at non-irradiated lesions, a phenomenon known as the abscopal effect.

Methods: Data was collected from Stage IV melanoma patients treated with both radiation and immunotherapy. Treatment response was assessed on PET/CT imaging according to corresponding PERCIST/RECIST criteria and analyzed against patient characteristics using the Mann-Whitney U test. Patient and treatment characteristics were also compared with the log-rank test on Kaplan Meier survival curves. For the abscopal effect, changes in the largest non-irradiated tumor size were analyzed between imaging and standardized to time.

Results: Consistent with published research, patients with intracranial irradiated lesions demonstrated shorter progression-free survival (PFS) than those with extracranial irradiated lesions. There was no significant difference in tumor size growth rates among both intracranial and extra cranial non-irradiated lesions. Patients who received both PD-1 and CTLA-4 inhibitors did not display significant differences in overall survival, progression free survival, or PERCIST/RECIST tumor response compared to patients who only received 1 drug. Older patients (>65) trended towards responding better to radiotherapy than younger patients (<65).

Conclusion: Although melanoma is considered relatively radioresistant, combining immunotherapy with radiation may enhance patient response to treatment. Further prospective studies are warranted to better understand how various factors impact patient response to the addition of immunotherapy with radiotherapy.

Racial Differences in Patient-Reported Access to Telehealth: An Important and Unmeasured Social Determinant of Health

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Background: The COVID-19 pandemic expanded opportunities for remote oncology telehealth visits. However, reliable internet connectivity, digital literacy, and patient comfort with virtual medical visits may differ among patients, especially socially disadvantaged groups. The primary aim of this study was to identify barriers which might limit access to telehealth video services.

Methods: First, retrospective analysis was performed of composite administrative data of all patient visits to a large regional cancer center during the pandemic (3/2020-4/2022). Second, a prospective, cross-sectional study was conducted of patients with known or suspected malignancy over a six-month period (11/2021-5/2022). A survey regarding video telehealth accessibility was verbally administered to patients at their clinic visit.

Results: Administrative data demonstrated that although Black patients comprised 43% (n=9,021) of all patient visits (n=20,953), the proportion of telehealth visits conducted among Black patients was significantly lower compared to White patients (29% vs. 71%, p<0.0001). Of the prospective, cross-sectional study cohort (n=148), 51.4% of patients (n=76) were Black, 38.5% (n=57) resided in a rural county, and 8.1% (n=12) were Medicaid-insured. Black participants were more likely to self-report lack of internet access (73.7% vs. 90.4%, p<0.01) and were less likely to report having access to or actively using a patient portal (29.0% vs. 47.2%, p<0.001) compared to White patients. The independent association of race and internet access (p<0.05) and patient portal use (p=0.001) persisted following multivariable analysis.

Conclusions: Black patients disproportionately under-participated in telehealth visits, suggesting underlying structural disparities in access to digital care. A greater proportion of Black participants self-reported lack of internet access and access to a patient portal compared to White patients. Ensuring equal internet access and digital literacy will be critical to reduce disparities in cancer care among racial minorities.

Use of Heart Rate Variability to Measure Emergency Physician Stress

Authors: Jennifer McMains Evans, Juan March MD, Stephen Taylor MHS, Andrew Bouland MD, Bryan Kitch MD, Robert Portela MD

Background and Objectives: The COVID-19 pandemic has brought the issue of physician wellness and moral injury to the foreground. Developing a resilient workforce must be a priority, and to achieve this goal we must first obtain objective data to determine which aspects of clinical practice are most stressful. Heart rate variability (HRV) is used to identify fetal distress during labor and has been used to identify stress in physicians. The purpose of this study was to use HRV to identify what aspects of clinical practice were most stressful for emergency physicians.

Methods: This prospective cohort study was performed at a university-based emergency department with a census of 100,000, that is a level-1 trauma center, comprehensive stroke and PCI center. Each participant had both their clinical activities and HRV data monitored and recorded in real time. Over the course of the shift each individual clinical activity was entered in real time using an Excel matrix with a drop-down menu with specific categories and subcategories for interactions with other physicians, non-physician healthcare providers, patients, electronic medical records, electrocardiograms, procedures, and more. Stress was defined using the HRV standard ratio of low frequency to high frequency of < 1.0 . These stressful events were then analyzed to identify which clinical activities most frequently elicited a stress response.

Results: A total of 12 emergency medicine (EM) interns and 10 EM attending physicians participated in the study during their clinical shifts. The most stressful events for interns included: 21.7% of encounters with family members, 21.1% of interactions with patients during history and physical exams, and 18.8% of updating patients. In contrast, the most stressful events for attending physicians were: 20.8% of interactions with non-EM providers, 20.0% of updating patients, and 16.5% of record reviews. Additionally, we found that attending physicians were only stressed 9.1% of the time when caring for critically ill patients.

Conclusion: Heart rate variability indicated the primary stressors for interns were patient interactions. In contrast, the primary stressor for attendings were interactions with non-EM providers. Our study was limited by the small sample size at one academic institution. Future studies should examine other academic institutions, non-academic sites, and the changes seen during residency training.

Demographic differences in Attitudes toward Mental Illness, Mentally Ill Persons, and Help-Seeking Behaviors of South Asians living in the U.S

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Abstract: Existing data on South Asian (SA) healthcare disparities in the United States, particularly in the realm of mental health, is very limited. Previous research has suggested that SAs have higher rates of suicide when compared to other subgroups in the Asian diaspora. Elderly SAs have also been found to have higher levels of acculturation stress, yet SAs are less likely to seek professional help for their mental ailments. With Asian populations being identified as one of the fastest growing foreign-born populations in the US, concerns regarding their mental health and wellbeing will only be exacerbated if not adequately addressed. An exploratory study seeking to understand SA attitudes toward mental health will provide a framework of understanding that could encourage the development of community-based and culturally sensitive programs that are informative to SA populations. The survey used in this study was modeled after the Weller and Grunes's Attitudes to Mental Illness Questionnaire, which has been previously validated, to assess our primary variables of interest. Data for this study was collected from individuals who identify as SA and live in the United States via a single computerized survey with multiple scales and measures that will assess demographics, participant characteristics, experiences with mental illness, knowledge about the causes of mental illness, attitudes toward mentally ill people, and attitudes toward mental health help-seeking behaviors. Group differences such as age, education level, gender, sex-assigned at birth, marital status, employment status, disability, experience with mental illness in SAs were used as the independent variables with survey scores being the dependent variable of interest. Though our results were not significant, some data approached significance. SAs between the ages of 45-59 seemed to score poorly in their attitudes towards mental illness while those with some college education scored most positively. Those who identified as caregivers to those with mental illness scored poorly in their perceptions toward the mentally ill, while those who identified their marital status as single score more positively. In conclusion, this study points us to South Asian subpopulations that may be more vulnerable to mental illness than their demographic counterparts. To draw significant conclusions that can further elucidate these trends it is important that future studies obtain a larger sample size and conduct data from a more representative geographic population.

Barriers to Receiving Proton-Craniospinal Irradiation for Pediatric Medulloblastoma Patients in a State without Proton Access

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Purpose/Objective(s): Medulloblastoma represents ~20% of all pediatric brain malignancies. The preferred treatment modality for craniospinal irradiation (CSI) has evolved to be proton beam therapy to reduce late toxicities including secondary malignancy. Access to proton therapy centers is more limited in states without one. Barriers to access for rural patients are underreported in the literature.

Materials/Methods: Patients <25 years old with a diagnosis of medulloblastoma were identified from a tumor registry at a rural academic center. A chart review was conducted to identify specific barriers to proton beam CSI. Descriptive analyses were performed to describe this cohort and their barriers.

Results: We identified a total of 18 patients diagnosed between 2000 and 2022. The mean age was 10 years old (range 11 months - 20 years). 2 patients were excluded who had minimal documentation. 7 patients were diagnosed before 1/1/2014, a cutoff after which protons were considered more often in this patient population. Patient demographics were 39% female, 61% male, 22% Black, and 72% White, 6% Hispanic. 3 patients received protons. 2 patients had recurrence and 3 patients developed secondary malignancy. Out of 18 patients, proton therapy was discussed with 11 patients. The rates of documented barriers to radiotherapy for the cohort at large (n=18) and for those where proton therapy was discussed in particular (n=11) are as follows (cohort at large / had discussion): 4(22%) / 4(36%) difficulty obtaining insurance approval, 4(22%) / 4(36%) inpatient medical needs, 5(28%) / 5(46%) outpatient medical needs, 4(22%) / 4(36%) family scheduling conflicts, 3(17%) / 3(27%) travel costs/financial burdens, 4(22%) / 4(36%) not a clinical trial candidate, 3(17%) / 3(27%) radiotherapy delay, 9(50%) / 5(46%) other barriers to non-radiotherapy care. For the cohort at large or for those with proton therapy discussions, there were no significant associations between white and underrepresented minorities for the aforementioned barriers to care.

Conclusion: To our knowledge, this is the first study that identifies patient barriers to accessing proton beam CSI for medulloblastoma patients from a rural tertiary care center without in-state proton radiotherapy centers. This study yields insight into the particular barriers encountered by these patients and their families, allowing clinical teams to identify potential issues in an effort to overcome those barriers. Advocacy for access to care on behalf of this vulnerable patient population may be required by our field on a state and national level.

Service-Learning Distinction Track

A Rapid Review of Digital Inclusion Strategies and Interventions for Vulnerable Populations

Authors: Bridget Gallagher, Jamie Bloss, Leslie Cofie, Tania Connaughton-Espino, Paul Janampa, Joseph G.L. Lee, Catherine E. LePrevost, Modjolie Moore, Julianna Nieuwsma, Natalie Rivera

Background: Each year North Carolina employs at least 78,000 + migrant/seasonal farmworkers¹. In addition to having one of the most physically dangerous jobs in North Carolina, farmworkers are also at an elevated risk for anxiety and depression². Living in one of the 1,921 registered farmworker housing units, often made of concrete or metal, on isolated rural farms, means migrant farmworkers are frequently without internet or cell service. This “digital divide” prevents communication with their family and friends and adds to the stress of an already taxing job. Such social isolation contributes to poor mental health outcomes, including anxiety, depression, and substance-use disorders³. Our team conducted a rapid review to examine the impact of digital inclusion interventions targeted to vulnerable populations and identify best practices for potential future solutions.

Methods: All studies included in the review had to be dated after 1993, study a digital inclusion intervention and seek to benefit a vulnerable population. Digital inclusion interventions were defined as the following: increasing access to internet OR devices, reduction of cost of internet/mobile internet access, digital literacy training/digital navigation (inclusive of quality tech support), or apps & online content development designed to enable and encourage self-sufficiency, participation, and collaborations. Vulnerable populations were defined as racial/ethnic minority populations, indigenous populations, those of low socioeconomic status, refugees, migrants, and immigrants, those medically uninsured, those living in medically underserved areas including rural and urban or settlements, LGBTQIA+ populations, those unhoused, those who are disabled, older adults, H2A / H2B migrant workers, or those with limited English language proficiency. Outcomes studied would be either implementation based, such as reach, feasibility, and sustainability, or health based, including reductions in health disparities, increased access to telemedicine, or increased access to health information.

Potential Impacts: The goal of this review is to synthesize our findings in a narrative and present an unbiased take on the potential value of digital inclusion efforts for NC farmers and migrant farmworkers to our state legislators and those in the private sector. Also, our findings and insights will also be shared with farmers, farmworkers, community health workers, and public librarians as a guide on how to discuss digital inclusion efforts with policymakers themselves.

Conclusion: Migrant farmworkers are essential members of North Carolinian communities and economies. Improving the mental and physical health of this vulnerable population only adds to and improves our communities. Untapped potential lies in technology and connectivity to improve the lives and living environments of rural migrant farmworkers and promote sustainable wellbeing for those working in this isolating, stressful, and essential profession.

Building Bridges Mentorship Program

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Abstract: Across the United States, only 11% of all physicians are Black or Latinx, and this percentage has only increased by 2% since the year 2000.¹ Near-peer mentoring programs help increase diversity in medical schools, close the gap of limited access to resources, raise awareness of opportunities, and allow minority pre-medical students to feel heard and seen by mentors who have shared experiences.² Furthermore, mentoring programs can create authentic, long-standing relationships between mentors and mentees. To strengthen near-peer mentoring on the pathway to medical education, we created Building Bridges Mentor Program (BBMP), a medical student-led peer mentoring program at Brody that helps, guides, and empowers minority pre-medical students. BBMP consists of monthly workshops that begin in August and end in December. Each workshop focuses on a different aspect of preparing for the medical school application, for example, Medical College Admission Test preparation, extracurricular activities, letters of recommendation, and more. Mentors are current medical students at the Brody School of Medicine (BSOM); while mentees must have a strong interest in applying to medical school and either be current undergraduate students or have already graduated with a bachelor's degree. The matching process in a near-peer mentoring program is critical and helps establish a strong foundation for mentorship in pathway programs. At the BSOM, we have witnessed the success of this strategy in a student-led mentoring program and encourage other pathway programs using near-peer mentoring to invest time and energy in matching mentors with mentees to strengthen the bonds within each pair and realize the potential of the mentorship program to help empower those coming after us.

Implementation of In-Person PhysioCamp in Pitt County Provides Exposure to STEM Careers

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What? PhysioCamp is a “day-camp” that historically travels to local boys & girls clubs and other after-school programs to help K-12th grade students understand the human body and navigate the healthcare profession. Sessions last between 1-4 hours and students from a plethora of healthcare backgrounds (medicine, dental, nursing, PA) are involved. In-person activities historically included discussion of organs and how organ systems work together. Due to COVID, sessions were shifted to a telehealth model which allowed for broader outreach but also hindered the ability to work with students without reliable internet access.

So What? Historically, Pitt County has multiple areas with a lower than county, state, and national average of students pursuing STEM fields. When surveying the students who pursued postsecondary education from Farmville High School, only 12.9% of polled students wished to pursue a career in STEM upon graduation.¹ With the increasing national demand for healthcare providers and the need for doctors to serve rural areas, students from rural areas are the most likely to serve the areas in which they are from. As such, a better job must be done at increasing exposure to those career paths.

Numerous studies have shown the importance of after-school STEM programs in improving attitudes towards STEM increases the likelihood of students entering that field.² By going one step further and showing students real world applications of material, it increases the likelihood of entering a STEM field even further. In fact, students who reported participating in a summer program that showed them the real-life relevance of STEM had 1.6 times the odds of reporting STEM career aspirations at the end of high school compared with students who participated in a program that did not show them the real-world relevance of STEM.²

Now What? The establishment of in-person activities has occurred at three distinct locations, Farmville Middle School, Wahl-Coates Elementary, and JOY Soup Kitchen. Students were given post-session surveys to assess satisfaction and interest in STEM fields. In the future, Brody students should continue to serve as leaders and volunteers with PhysioCamp. They will maintain relationships with established connections and foster new relationships with community partners. They will also assist students at other medical schools in creating in-person PhysioCamp programs.

Following Through on Good Communication: The Impact of Language Proficiency on Care Transitions

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Background: Individuals with limited English proficiency (LEP) experience numerous barriers to health care. We assessed how English language proficiency was associated with completion of outpatient follow up after hospitalization for cardiovascular conditions and how English language proficiency was associated with location and timing of follow up.

Methods: We retrospectively identified Hispanic/Latino patients hospitalized at our medical center with unstable angina, myocardial infarction, and heart failure, who were instructed to follow up at an affiliated outpatient cardiology or primary care clinic within six months. Patients were classified as English proficient (EP; N=38) or LEP (N=27), and their health care utilization within the health system was tracked over a six-month period.

Results: Forty-three patients (66%) completed any follow up; 5 patients (8%) saw primary care only, 35 (54%) saw cardiology only, 11 (17%) saw both cardiology and primary care, 14 (22%) saw neither. We found no statistically significant differences between EP and LEP patients when comparing follow up visit completion, location, and timing of earliest follow up.

Conclusion: Our findings suggest existing protocols at ECU Health are mitigating barriers to follow up completion for LEP patients. Future research may identify what specific aspects of the healthcare system are contributing to this finding. Possible contributors include transitional care management, case management, language-concordant discharge instructions, and a language-concordant patient portal.

Reciprocal association between chronic pain and health insurance type in a population-based longitudinal cohort study

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Abstract: Chronic pain is a widespread condition limiting adults' daily activities and labor force participation. In the US, withdrawal from the workforce could be associated with loss of health insurance coverage, while lack of health insurance coverage can limit access to diagnosis and management of chronic health conditions. We used a longitudinal cohort study of middle-aged adults to investigate whether chronic pain is reciprocally associated with coverage by any insurance and type of insurance coverage over a 2-year period (2018 and 2020). Among 5,137 participants (median age of 57 years in 2018), 29% reported chronic pain in either year, while 9-10% were uninsured each year. Using multivariable cross-lagged logistic regression analysis, chronic pain in 2018 was not associated with having any insurance coverage in 2020, and lack of coverage in 2018 was not associated with chronic pain in 2020. In further analysis, we determined that public coverage, other (non-private) coverage, or no coverage in 2018 were associated with increased risk of chronic pain in 2020; while chronic pain in 2018 increased the risk of coverage by public rather than private insurance 2 years later, as well as risk of coverage by other (non-private) payors. The reciprocal association of non-private insurance coverage and chronic pain may be related to insufficient access to chronic pain treatment among publicly insured adults, or qualification for public insurance based on disability among adults with chronic pain. These results demonstrate that accounting for type of health insurance coverage is critical when predicting chronic pain in US populations.

Filling the Gap of Over-the-Counter Medical Supply Needs for Housing Insecure Populations: A Proposal

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Background: Housing insecure populations are not just homeless individuals but also those who live in transient housing. This includes individuals fleeing from intimate partner violence. The homeless community is especially vulnerable to many health conditions, so there is a need to also provide this group with access to over-the-counter (OTC) medications to manage minor ailments and promote preventive care effectively. This proposal seeks to address the healthcare disparities faced by the at-risk population residing in local shelters and to help alleviate them by forging partnerships, securing funding, and fostering a collaborative network to empower local shelters to better support the health needs of individuals in their care. Thus promoting a healthier and more resilient home-insecure population within our community.

Methods: The initiative requires the selection of local shelters to support, completing a needs assessment to gauge the urgency of needs, and finding community partners and university organizations to help fundraise or collect these items. Initially, this project would be carried out annually, but as funds and community partners increase, the impact can be increased in quantity and quality. The ultimate goal is to ensure that the individuals dwelling in these spaces have all needed over-the-counter medical and non-medical supplies. As this project was created, there was a need to create a secure, accountable, and sustainable location for funds raised to be housed until all items were collected. After meeting with the ECU University Advancement Office, the ECU Foundation was selected. However, to create a Service-Learning Distinction Track (SLDT) specific fund, this account must be started with \$5000. The current project shifted to fundraising so that this fund's creation allows a sustainable framework for my project, which can also be used as seed money in the form of mini grants for future SLDT members. Fundraising initiatives included flyers to solicit funds from distinction track alumni, students, and other physicians, a Double Good virtual Popcorn sale, and a personal "In Lieu of Graduation Gift" Fundraiser.

Results & Future Goals: This project resulted in the creation of a framework for a future SLDT scholar or cohort to continue. I have currently raised \$1500 toward the \$5000 goal to date. Future goals include the complete funding of the SLDT Fund to allow the implementation of this project and for this fund to serve as seed funding for other SLDT projects. Another goal includes having a SLDT member lead this initiative. Lastly, I hope to grow a network of ECU clubs and community partners, including Greenville businesses, to sustain item collection, continue funding the SLDT donation fund, and provide needed OTC supplies to our home-insecure populations.

*Use this link to submit a tax-deductible donation to the ECU Foundations. Put SLDT or Latasha Stabler in the instruction box. Thanks in advance for your donation www.give.ecu.edu/BSOM_DistinctionTrack