**AACP REPORT**

**Trainee Poster Honorable Mention Poster Abstracts Presented at the 123**th Annual Meeting of the American Association of Colleges of Pharmacy, July 23-27, 2022

**Assessing Changes in a First-Year Skills Laboratory Course to Address Experience Discrepancies in Student Performance**

Simran K. Rohatgi, Virginia Commonwealth University; Lauren Pamulapati, Virginia Commonwealth University; Teresa M. Salgado, Virginia Commonwealth University; Lauren Caldas, Virginia Commonwealth University. **Objective:** Assess the impact of modifications to a first-year skills laboratory course on the performance gap between students with and without prior pharmacy experience. **Methods:** This retrospective analysis builds upon a previous study in this skills laboratory course, which found a discrepancy between students with and without prior pharmacy experience. Over six years (2016-2021), data about student pharmacy experience were collected and paired with student grades on a Top 300 Exam, on prescription dispensing activities, and in the course overall. This study compares student performance subsequent to course changes made between 2018 and 2021 to student performance in 2016 and 2017, analyzed in the previous study. Frequency and percentage will be utilized for categorical variables and mean (SD) will be calculated for continuous variables. Logistic regression will be performed to assess the association between prior pharmacy experience and student predictors. **Results:** Research work in progress. **Conclusions:** Current admission criteria for Doctor of Pharmacy programs in the United States do not include experience working in a pharmacy setting. Previous scholarship within this skills laboratory course found that first-year pharmacy students with prior pharmacy experience performed better than those without. In an effort to close this performance gap, the course underwent modifications. This study will assess the success of these efforts and discuss how other faculty can consider the impact of their own admission criteria on student performance.

**Assessing the Impact of a Leave of Absence on Student Pharmacists’ Self-efficacy**

Allison M. Shaunak, Virginia Commonwealth University School of Pharmacy; Lauren Pamulapati, Virginia Commonwealth University; Rachel Koenig, Virginia Commonwealth University; Lauren Caldas, Virginia Commonwealth University. **Objective:** This study aims to assess the impact of a leave pharmacist’s leave of absence on their self-efficacy utilizing validated self-efficacy scales. **Methods:** This study was performed with an anonymous, optional Qualtrics cross-sectional survey. The survey consisted of the validated General Self-efficacy (GSE) and the Rothenburg Self-efficacy (RSES) as a series of Likert scale self-reported student statements followed by demographic questions, including leave length and reasoning. Participants were invited via email from a single institution. The GSE and RSES will be scored and presented as means with standard deviations. Group comparisons will be made between those with reported leave of absence and those without. Categorical demographics will be presented as frequencies and percentages, while continuous variables will be presented as means and standard deviations. **Results:** Data collection will close at the end of March 2022. To date, 36 students have completed the survey, the majority were female with an average age of 25.2 (3.4) years. Leave had been taken by 47.2% (n=17) with most leave lengths under one week (41.2%), followed by greater than one month (35.3%). The most commonly identified reason for leave is loss of a loved one, 23.5% (n=4), however 58.8% (n=10) opted not to disclose. **Conclusions:** Data collection is still in progress with results to follow. Comparisons between students based on leave will determine discrepancies in self-efficacy, which the institution may need to address to better support these students. Data allowing, assessment between those with different lengths of leave will yield additional insights to support students who take leave of absences.

**Barriers, Facilitators, and Impact of Clinical Pharmacy Services within Ryan White Funded HIV/AIDS Clinics**

Rebecca S. Heath, University of Mississippi School of Pharmacy, Joshua Fleming, University of Mississippi School of Pharmacy, Scott Malinowski, University of Mississippi School of Pharmacy, Alexander Mills, University of Mississippi School of Pharmacy. **Objective:** Do clinical pharmacists in Ryan White HIV/AIDS Program clinics provide comprehensive medication management for HIV alone or for non-HIV comorbidities? What are the facilitators, barriers and impact of clinical pharmacy services within Ryan White HIV/AIDS Program clinics? **Methods:** This is a prospective, observational, survey pilot study of clinical pharmacists in Ryan White HIV/AIDS Program clinics. Ryan White HIV/AIDS Program clinics in the southeast United States were identified via the
HRSA website and screened for inclusion of a clinical pharmacist in their services. Clinical pharmacists within the clinics were invited to participate in the survey via phone or email and all entries were recorded via Qualtrics. Survey data was collected to gather information regarding the scope of the pharmacists’ practice, facilitators, and barriers to providing CMM for non-HIV comorbidities. Approximately 100 potential sites will be contacted for a convenience sample. Descriptive statistics will be used to summarize demographic data and responses to the survey. Potential correlations will be made utilizing regression analyses. Results: Results will be forthcoming as data collection is in progress. Anticipated results will provide information into whether pharmacists are providing CMM for HIV alone or for non-HIV comorbidities. Additional insights into the barriers, facilitators, and impact of clinical pharmacy services within Ryan White funded HIV/AIDS clinics are anticipated. Conclusions: Conclusions will be drawn following study conclusion. Based on the research results, future qualitative studies are anticipated.

Democratizing Artificial Intelligence: Empowering College Curriculums and the Next Generation Workforce with Deep Learning Technologies

Bryan Mildort, Howard University College of Pharmacy, Simon Wang, Howard University College of Pharmacy, Toyin Tofade, Howard University College of Pharmacy, Indiran Pather, Howard University College of Pharmacy. Objective: We will utilize a deep learning algorithm to construct and productionize a machine learning pipeline project that uses artificial intelligence (AI) to optimize the verification of medication orders and medication therapy management. The data generated from the creation of this project will serve as learning modalities to constitute data science programs at Howard University College of Pharmacy. Our goal is to create practical AI/ML-powered software that will set standards for integration into the workflow of community pharmacy settings. Furthermore, we plan to expand the conceptual elements of data science into learning curriculums and evaluate its impact on recruitment and engagement. Methods: Students will be evenly tasked with either recording mock dispensing activities with varied settings for construction of the project model or visually annotating the collected datasets that will then be algorithmically productionized through deep learning algorithms. Students will also be survey evaluated in regards to their general interest of STEM career fields. Results: We will report the mean reduction in medication errors from select production ventures and expect that the implementation of the project model reduces errors relative to medication orders, as well as the results of student evaluations relative to their interest in data science and expect that participation in this project increased their interest in the career field. Intergroup analysis will be performed with Chi Square tests for nominal scale outcomes. Conclusions: This innovative technology could have major impacts in the community pharmacy setting and could also transform the learning experience for minority students within STEM career fields.

Does Cognitive Apprenticeship Theory Change Clinical Reasoning Skills in Third-Year Student Pharmacists

Michael L. Behal, University of Kentucky Healthcare, Blake Robbins, University of Kentucky Healthcare, Alexandra Wieand, University of Kentucky Healthcare, Heather D’Amico, University of Kentucky Healthcare, Jeff Cain, University of Kentucky, Jimmi Hatton-Kolpek, University of Kentucky. Objective: Cognitive apprenticeship theory (CAT) is a learning theory where expert thinking is demonstrated and visualized to foster the growth of cognitive processes in learners. Information regarding the use of CAT in pharmacy education is lacking. The objective of this study was to evaluate the impact of CAT in a doctor of pharmacy course and how it affects change in clinical reasoning skills of third-year student pharmacists over time. Methods: Third-year student pharmacists will be administered a well-established and nationally recognized clinical patient case assessment on week 1 and week 15 of an integrated critical care pharmacology and therapeutics course built on the principles of CAT. The clinical patient case features general clinical concepts designed to measure clinical reasoning skills and not those specifically pertaining to critical care pharmacotherapy. For students who provided informed consent, week 1 and week 15 clinical patient case scores will be evaluated by independent reviewers based on a validated 100-point scale. In addition, a self-assessment survey will be administered along with the clinical patient cases to assess student perceptions of clinical reasoning and therapeutic decision-making skills at week 1 and week 15. Clinical patient case scores and self-assessment surveys will be compared to assess how a course designed using CAT affects clinical reasoning skills of third-year student pharmacists. Results: One-hundred seventeen student pharmacists participated in the week 1 clinical patient case and self-assessment survey. The week 15 clinical patient case and self-assessment survey are pending administration, and complete results will be presented at the 2022 AACP Annual Meeting. Conclusions: Pending results and will be presented at the 2022 AACP Annual Meeting.
Drug Discovery & Pain Research Through Studies at the GABA-B Receptor

Katherine E. Kreusel, University of Mississippi School of Pharmacy, Baharul Islam, University of Mississippi School of Pharmacy, Yuma Ortiz, University of Florida College of Pharmacy, Jenny Willkerson, University of Florida College of Pharmacy, David Colby, University of Mississippi School of Pharmacy. Objective: When the primary inhibitory neurotransmitter of the nervous system, GABA, binds to a GABA receptor, there is a block in nerve transmission which is important when studying pain and drug addiction. Many therapeutics modulate the GABA-A receptor, but only one drug, baclofen (Lioresal®), targets the GABA-B receptor. Baclofen is a peripherally acting agent; therefore, there is a need to identify new classes of molecules that activate the GABA-B receptor while also acting at the central nervous system. Methods: A new class of fluorinated molecules from the Colby laboratory were developed as agonists of the GABA-B receptor. Lead compounds were synthesized and administered to C57BL/6 mice via intrathecal injections. The mice were placed in an enclosure on a hotplate at 52°C for a maximum of 30 seconds. Their latency to respond to the thermal stimulus was recorded before and after drug administration. Analgesia is measured as an increase in the normal, nonpathological latency to respond to heat. The mice were then pre-treated with CGP35348, an antagonist of the GABA-B receptor. Results: Compounds were purified and characterized by 1H, 19F, and 13C NMR and HRMS. Dose response curves were constructed, with 100% maximum potential effect (MPE) indicating that the mice sat on the hotplate for the entire 30 seconds. Both lead compounds produced significant antinociception but were found to be about 10-fold less potent than racemic baclofen, a clinically used agonist of the GABA-B receptor. Our results confirmed the mechanism of action of the lead compounds in vivo. Conclusions: In the hot plate acute pain assay, two fluorinated GABA-B receptor agonists block acute pain signaling, demonstrating that these compounds may be useful analgesics.

Escaping Classroom Boredom: A Virtual Experience to Promote Engagement in Pharmacy Student Learning

Maura A. Shaffer, TTUHSC Jerry H. Hodge SOP, Jacee Billings, TTUHSC Jerry H. Hodge SOP, Celine Zhong, Texas Tech University Health Sciences Center. Objective: In the era of virtual and hybrid model delivery of education during the COVID-19 pandemic, educators are searching for ways to improve student engagement and enhance learning within pharmacy school. The primary objective of this study is to capture students’ overall interest, motivation, perceived competence, and pressure regarding the use of a virtual platform for an escape room active learning activity. Methods: This is a retrospective study of second-year pharmacy students at Texas Tech University Health Sciences Center (TTUHSC) during a spring semester course in the 2021-2022 academic year. The inclusion requirement for study participation was enrollment as a TTUHSC student in the Parenterals and Specialty Pharmaceuticals Course on Amarillo, Dallas, or Abilene campuses. Student surveys that were not complete or invalid were excluded from the study. Initial recruitment was among 96 second-year pharmacy school students enrolled in Parenterals and Specialty Pharmaceuticals, a required course in the pharmacy curriculum. The active learning virtual escape room activity was conducted virtually and occurred simultaneously across multiple campuses. The virtual escape room activity consisted of three levels in varying difficulty and six questions total. During the activity, students had access to drug information resources. After completion of the activity, students were asked to voluntarily complete the Intrinsic Motivation Inventory post-activity survey to gauge student perspectives on the application of required curriculum content using a virtual escape room. Results: Completed surveys were submitted by a total of 54 students out of 96 (56.3% response rate). Research-in-progress. Conclusions: Research-in-progress.

Evaluating Faculty Cultural Intelligence Self-Efficacy at UNC Eshelman School of Pharmacy

Kaitlyn E. Tenn, University of North Carolina at Chapel Hill Eshelman School of Pharmacy, Jacqueline McLaughlin, University of North Carolina at Chapel Hill, Kyle T. Fassett, University of North Carolina at Chapel Hill, Lana Minshew, Medical College of Wisconsin, Carla Y. White, University of North Carolina at Chapel Hill. Objective: This study examined the construct validity of cultural intelligence (CI) and evaluated faculty self-efficacy in developing CI in PharmD students. Methods: A 25-item survey was developed based on a Cultural Intelligence framework for pharmacy education, which consisted of four constructs: (1) cultural awareness, (2) cultural desire, (3) cultural knowledge, and (4) cultural practice. Participants were recruited during faculty meetings at a single institution and prompted to rate their self-efficacy on a scale of 1-cannot do at all to 10-highly certain can do. Survey responses from faculty in the PharmD program and who completed >90% of CI survey items were analyzed. An exploratory factor analysis was conducted using principal components analysis with a varimax rotation and the Kaiser rule (i.e., eigenvalues>1.0). Internal consistency reliability of each CI construct was examined using Cronbach alpha (α).
**Results:** Sixty-eight faculty members (89.4% response rate) completed the survey. A factor analysis revealed three CI constructs, rather than the original four constructs: (1) cultural awareness ($\alpha = 0.93$), (2) cultural practice ($\alpha = 0.96$), and (3) cultural desire ($\alpha = 0.89$). PharmD faculty rated their self-efficacy highest in the domain of cultural awareness ($M = 6.13$, SD = 1.93), and lowest in the domain of cultural desire ($M = 3.90$, SD = 2.87). **Conclusions:** Areas of strengths and weaknesses amongst faculty self-efficacy regarding CI constructs can inform and tailor future faculty development strategies. Additional research is needed to identify evidence-based methods for faculty development strategies utilizing the identified patterns and constructs.

**Health Professions Students’ Perceptions of and Experiences with Philanthropy**

Vindya Perera, Northeast Ohio Medical University (NEOMED), Mary E. Fredrickson, Northeast Ohio Medical University (NEOMED). **Objective:** To examine the relationship between demographic factors, philanthropic experience, and health professions education (HPE) students’ perceptions and expectations of philanthropy. **Methods:** A cross-sectional survey was offered to all medical, pharmacy, and graduate students at NEOMED. Demographics and information pertaining to philanthropic experience were collected. Students’ perceptions and expectations of philanthropy were evaluated using a 5-point Likert Scale. Statistical testing via SPS was two-sided with $p < 0.05$ considered statistically significant. **Results:** 139 students completed the survey. 46% agree contributions to their alma mater make a difference, 57% plan to volunteer time as alumni, and 40.3% plan to contribute monetarily as alumni. Most respondents do not make current monetary donations or volunteer at their undergraduate or high school alma maters. Students who donate financially to their undergraduate or high school alma mater were more likely to strongly agree contributions to their alma mater make a difference ($p = .03$). Students who volunteer at their undergraduate or high school alma mater were more likely to plan to volunteer time as an HPE alum ($p = .002$). **Conclusions:** This data suggests HPE students who engage in philanthropic initiatives may be more likely to do so as alumni. Educating students on the importance of philanthropy may enhance perceptions of giving and willingness to contribute as alumni. Further research is needed to determine how best to structure and measure the impact of philanthropic educational initiatives.

**Impact of an Integrated Pharmacy Curriculum on Student Emotional Intelligence**

FNU Asish Biju, University Of Houston College of Pharmacy, Matthew Wanat, University of Houston, Catherine Vu, University of Houston College of Pharmacy, Divya Varkey, University of Houston. **Objective:** To evaluate the impact of an integrated pharmacy curriculum on the development of student emotional intelligence in areas of self-perception, self-expression, interpersonal skills, decision-making, and stress management. **Methods:** This is a cross-sectional observational study of P1 through P4 students at the University of Houston College of Pharmacy, taken from December 2021 through February 2022. Students were provided an electronic link to complete both the Emotional Quotient Inventory, version 2.0 (EQi-2.0) and a separate baseline characteristics survey in Qualtrics that captured self-identified race and ethnicity, degree obtained prior to pharmacy school, work experience, organizational involvement, and self-reported average composite GPA. The primary endpoint is the mean total EQi-2.0 scores and the secondary endpoints include mean composite EQi-2.0 scores in the domains of self-perception (SP), self-expression (SE), interpersonal skills (IS), decision-making (DM), and stress management (SM). **Results:** A total of 120 students completed the EQi-2.0 to date with 60 (53.10%) P4, 27 (22.10%) P3, 18 (15.80%) P2, and 15 (11.70%) P1 students completing the assessment. The mean total EQi-2.0 scores were calculated to be 102.93 ($\pm 13.50$), 92.11 ($\pm 13.19$), 90.50 ($\pm 13.84$), and 95.33 ($\pm 15.79$) for P4, P3, P2, and P1 students respectively. A statistically significant increase was seen in the mean total EQi-2.0 score in the P4 students compared to the P3 students ($10.82$, $p = 0.0008$). **Conclusions:** Based on the interim results, P4 students were found to have the highest average emotional intelligence with a significant increase in the mean total score noted between P3 and P4 groups. We hope the findings of this research will further demonstrate growth in emotional intelligence as students progress through the curriculum and help identify areas of improvement in the various domains of emotional intelligence.

**Impact of Low-Fidelity Simulation Based Learning in a Cardiovascular Pharmacotherapy Module**

Kendra N. Rice, Wingate University, Carrie L. Griffiths, Wingate University, Angela Pegram, Wingate University, Donald Nuzum, Wingate University, April Robinson, Wingate University. **Objective:** To determine the impact of low-fidelity simulation on the application and comprehension of 5 major disease states (myocardial infarction, heart failure, hypertension, dyslipidemia and atrial fibrillation) in a cardiovascular pharmacotherapy module examining pre-simulation course activities versus post-simulation course final exam and impact on course activities and grades. **Methods:** The study population includes students enrolled in the cardiovascular pharmacotherapy module.
from 2020-2022. The course is currently offered to P1 students in the Blue (new) Curriculum over a 15-week period and P2 students in the Gold (old) Curriculum over a 10-week period. The P3 class serves as the control group. Baseline knowledge change will be obtained by comparing practice quiz answers to corresponding exam questions. At the end of the course, answers from the patient simulation case involving the 5 disease states will be compared to the corresponding final exam case. The change in scores will be compared to see if low fidelity simulation has more impact than practice quizzes on exam grades. 

Results: Data collection is currently in process with goal completion by May 2, 2022. The final results will be presented at the AACP annual meeting. Conclusions: Conclusions will be determined at data collection completion. This information will add to the literature of low-fidelity simulation and the positive impact on student performance.

Implementation of a Virtual, Statewide Pharmacy Writing Series: Improving Professional Writing Skills
Cassie Sedgwick, William S. Middleton Memorial Veterans Hospital, Amanda Margolis, University of Wisconsin-Madison, Michael W. Nagy, Medical College of Wisconsin. Objective: To implement a standardized educational series covering fundamental writing topics targeting pharmacy student writing club members and other emerging writers in pharmacy. Methods: A 9-module virtual lecture series was created through The Journal of the Pharmacy Society of Wisconsin (JPSW). Presentations were 20-30 minutes long and covered topics such as literature searches, use of figures, and peer review. Links to the lectures were distributed via email to student writing club advisors, posted on the PSW website, and included in an issue of JPSW. A survey was sent to student writing club advisors to disseminate to student members. This survey included twelve post-retrospective questions regarding knowledge before and after completion of the series using a 5-point Likert scale (1 = no knowledge to 4 = very knowledgeable) and one question to assess willingness to recommend series. Results: Six students completed the survey. One of the six students viewed five modules while the rest completed all nine. Students reported an improvement in knowledge for all twelve competency questions with the improvement ranging from 1 to 2 points (mean increase of 1.4). The greatest area of improvement was appropriate use of figures and tables and the least improvement occurred in identifying grammatical errors. All six students would recommend the series to other emerging writers. Conclusions: A virtual lecture series was effective in improving emerging writer’s self-reported knowledge of fundamental writing topics and was recommended to other new writers by those who engaged in the series.

Implementing Problem-Based-Learning for Pharmacy-Practice Courses at JSS College of Pharmacy, Mysuru, India; A Novel Experience
Atiqulla Shariff, Dept. of Pharmacy Practice, JSS College of Pharmacy, JSS Academy of Higher Education & Research, Mysuru, India, Srikanth Malavalli Siddalingegowda, Dept. of Pharmacy Practice, JSS College of Pharmacy, JSS Academy of Higher Education & Research, Mysuru, India. Objective: Objective: To implement and evaluate problem-based learning (PBL) for pharmacy practice courses at JSS College of Pharmacy, Mysuru, India. Methods: The PBL modules in all four courses of the first semester of the Master of Pharmacy in Pharmacy Practice program were developed matching the learning outcomes of each course as prescribed by the Pharmacy Council of India. A vetting committee consisting of a course faculty, one subject expert, and a study investigator, vetted the PBL modules and were introduced to students to facilitate active learning. The students’ experiences following PBL in each course in five different domains were captured using a modified-PBL environment inventory. In addition, the experiences of faculty towards the implementation of PBL in their courses were assessed using a 12-item tool. The results were analyzed and presented descriptively. Results: A total of seven (six individual and one integrated) PBL modules were developed and implemented. The mean ± SD scores (out of 5) for each domain of the modified-PBL environment inventory were; 4.7 ± 0.5 (support from the facilitator), 4.7 ± 0.4 (student responsibility), 4.8 ± 0.4 (student interaction & collaboration), 4.7 ± 0.4 (quality of PBL scenario) and 4.9 ± 0.3 (impact of PBL environment on student learning). The mean ± SD scores for the 6-items describing faculty experiences was 4 ± 0 and for another 6-items it was 5 ± 0. Conclusions: The PBL was successfully implemented for Pharmacy Practice courses. The students’ evaluation indicates that they are either agree or strongly agree with the implementation and usefulness of PBL active-learning pedagogy, as it facilitated them to better understand the concepts in pharmacy practice courses.

In-vitro Evaluation of Inhibitory Effect of Nutraceuticals Towards SARS-CoV-2 papain like protease (PLpro) Enzymatic Activity
Anasha Kawall, Philadelphia College of Osteopathic Medicine-School of Pharmacy, Avini Sharma, Philadelphia
College of Osteopathic Medicine-School of Pharmacy, Devin Lewis, Philadelphia College of Osteopathic Medicine-School of Pharmacy, Krishna Chavada, Philadelphia College of Osteopathic Medicine-School of Pharmacy, Srujana Rayalam, Philadelphia College of Osteopathic Medicine, Vicky Mody, Philadelphia College of Osteopathic Medicine, Shashidharamurthy Taval, Philadelphia College of Osteopathic Medicine. **Objective:** The surge of the severe acute respiratory syndrome (SARS) coronavirus-2 (SARS-CoV-2), that has led to the infection of COVID-19, has become a significant threat globally due to the high transmission rate of infection and mortality. Although vaccinations are available, breakthrough infections still occur with quick emerging variants. Currently, there are only a few drugs approved by FDA under emergency use authorization to treat COVID-19, however their adverse effects are of major concern. Therefore, it is important to pursue potential therapeutics to prevent the replication and viral spread of the SARS-CoV-2 virus. Several studies have shown that targeting viral proteases are better options to inhibit the viral replication. 3-chymotrypsin-like protease (3CLpro) and Papain-like protease (PLpro) are necessary proteases for coronaviruses’ replication. Among these two proteases, PLpro exhibits both proteolytic and deubiquitinase activity that promotes viral replication as well as disrupts the host cells’ innate immune response when infected with the SARS-CoV-2. **Methods:** Based on previous studies, we selected 58 phytochemical and performed in vitro SARS-CoV-2 PLpro enzymatic assay to screen the potential inhibitory effects. **Results:** We have observed that the phytochemicals such as myricetin, theaflavin, tanshinone-I exhibited more than 80% inhibition activity at 50 μM concentrations with the IC50 values of 12.12 μM, 7.3 μM and 1.36 μM respectively, whereas rutin, catechin, mangiferin, rhein, quercetin, oleuropein and gamma-mangostin exhibited 60-70% inhibition at higher concentrations (100 and 200 μM). **Conclusions:** In summary, our data suggests that the tested phytochemicals selectively inhibited SARS-CoV-2 PLpro enzymatic activity, suggesting their potential use as anti-SARS-CoV-2 agents.

**Leveraging a Graduate Assistant to Increase Authentic Student Engagement with Prospective Pharmacy Students**

Leeann J. Williamson, Shenandoah University, Katelyn M. Sanders, Shenandoah University, Zara Risoldi Cochrane, Shenandoah University. **Objective:** The purpose of this pilot Graduate Assistantship was to establish and implement a program that emphasizes the importance of creating authentic student interactions with applicants and prospective students. This program was necessitated by the need for greater student involvement in the admissions process that could not fully rely on volunteerism of students to meet the current needs of the admissions team. **Methods:** Over the course of the Spring 2022 semester, the Graduate Assistant has designed and implemented several projects related to pharmacy recruitment and admission. These include mapping out a course schedule to complete prerequisite courses for students, redesigning the current student ambassador program, increasing relationships and activities with the early assurance program students, facilitating interactions on social media platforms, as well as constructing new recruitment materials that portray a comprehensive view of the pharmacy school education and experience from a student perspective. **Results:** The impact and overall success of the Graduate Assistantship will be determined by qualitative data, such as surveys of student ambassadors and formative feedback from matriculating students. This data would be focused on outcomes of the programs and initiatives implemented throughout the duration of this piloted program. **Conclusions:** This assistantship was designed with the goal of increasing overall admissions rates at Bernard J. Dunn School of Pharmacy by creating a more well-rounded admissions process that includes more interaction with current students. The Graduate Assistant will serve as a point of contact that is accessible and authentic throughout the admissions process to create a more transparent environment. This program will also serve to benefit current students by allowing them to advance in co-curricular areas including leadership development and communication skills.

**Pedagogical Tools and Strategies to Develop Cultural Intelligence in Pharmacy Students and Faculty**

Aimee Ho, University of North Carolina at Chapel Hill, Jacqueline McLaughlin, University of North Carolina at Chapel Hill. **Objective:** To review cultural intelligence pedagogy in pharmacy education and compile evidence-based pedagogical tools and strategies that educators can use to support cultural intelligence development in pharmacy students and faculty. **Methods:** An exhaustive list of search terms were included to capture the variety of terms for “cultural intelligence” (e.g., cultural competence). Search engines included PubMed, Embase, CINAHL, Scopus, ProQuest Dissertations and Theses, ERIC, and PsychInfo. Inclusion criteria included the implementation of pedagogical tools to develop cultural intelligence in any pharmacy learning environment (e.g., classroom). Two researchers completed abstract and subsequent full-text screenings to identify...
literature that met the inclusion criteria. Data extraction was completed by one researcher. Results: A total of 639 articles were identified after removing duplicates. Eighty-two articles were included for full review after screening. Some example tools reported include lectures, case studies, and experiential rotations. Year of publication ranged from 2004 to 2021. Only two articles (2.4%) detailed tools for faculty development whereas the rest (n=80, 97.6%) focused on student development. Twenty-seven articles (32.9%) described pedagogical tools for fostering cultural intelligence concurrently with interprofessional development; the remaining articles (67.0%) focused only on pharmacy. While not every study addressed each cultural intelligence framework domain (Awareness, Knowledge, Practice, and Desire), all four domains were apparent within the included articles. Conclusions: Various pedagogical tools have been used to develop cultural intelligence in pharmacy students with some methods used more than others. Integrating many different pedagogical methods throughout the entire pharmacy curriculum aligns more closely with the dynamic nature of learning and continuous self-refinement required to develop cultural intelligence than isolated, one-time lectures or workshops.

Perceptions of Peer Teaching in a Pharmacy Skills Based Laboratory

Morgan M. Casciole, Wilkes University Nesbitt School of Pharmacy, Natalie Everett, Wilkes University Nesbitt School of Pharmacy; Laura Kline, Wilkes University Nesbitt School of Pharmacy; Danielle M. Kieck, Wilkes University Nesbitt School of Pharmacy; Brenda Gruver, Wilkes University, Kimberly Ference, Wilkes University. Objective: To assess the perception of students, faculty, and previous lab coaches on a peer teaching model integrated into a pharmacy skills-based laboratory, as well as the impact of the position on faculty and lab coaches. Methods: Every year, three lab coaches are selected to provide longitudinal peer teaching to three different sections of the same course in the fall semester second professional (P2) and spring semester first professional year (P1) pharmacy skills-based laboratory courses. These peer teachers deliver formal lectures in the laboratory, provide feedback on student work, facilitate small group activities, and help instructors with preparing laboratory materials. Current P1 and P2 students will receive an anonymous 12 question survey that focuses on student comfort with lab coaches and asking questions, the quality of written and verbal feedback received, and if lab coaches should be utilized in the future. Past lab coaches and faculty will be asked about their experiences as or working with a lab coach during semi-structured interviews. The interview questions will also collect the impact the position had on previous lab coaches, and the benefits and disadvantages of utilizing lab coaches as perceived by faculty. Statistical analysis will be conducted using descriptive and inferential statistics for multiple choice and likert-type questions. Themes will be identified for open-ended survey questions and semi-structured interview responses. Results: Research in progress. Conclusions: Research in progress.

Qualitative and Quantitative Analysis of Drug Diffusion, Into and Across Dermaplaned Skin

Dorcas A. Frempong, East Tennessee State University, Jagroop Kaur, East Tennessee State University, Akeemat O. Tijani, East Tennessee State University, Maryam Al Shawi, East Tennessee State University, Sophia Sergent, East Tennessee State University, Rebecca Lessaint, East Tennessee State University, Kara Shaw, East Tennessee State University, Ashana Puri, East Tennessee State University. Objective: In this study, we sought to evaluate the potential of dermaplaning, a popular cosmeceutical skin rejuvenation technique as a physical permeation enhancement technique. Baclofen, a typical hydrophilic drug, was used as the model drug. Methods: A specific area of skin was treated with 4 strokes of dermaplane. Interindividual variability in use of the device and the consequence of this on permeation was assessed by having 3 different individuals work with different samples of skin (n=4). Skin resistance was determined before and after dermaplaning. Histological evaluation and methylene blue staining of treated area was done to confirm the depletion of stratum corneum (SC). Confocal imaging to validate the effect of dermaplaning on depth of permeation was done using fluorescein, a hydrophilic dye. Results: A significant drop in electrical resistance post skin treatment with dermaplane strokes was observed for all treatment groups, signifying the depletion of barrier properties of SC (p<.05). Consequently, significant drug flux and permeation was observed for the model drug, baclofen in 2 h. For the different users, the average drug flux and cumulative amount permeated in 2 h were significantly higher compared to the control (p<.05). There was no significant difference between different users (p>.05). Histology studies depicted the removal of SC and some parts of viable epidermis. Confocal imaging of the permeation of hydrophilic dye showed deeper diffusion in dermaplaned skin compared to intact control skin. Dermaplaned skin pieces were heavily stained with methylene blue compared to control pieces indicating the loss of SC and exposure of hydrophilic viable epidermis and/or dermis to the dye. Conclusions: The results, overall, depict dermaplaning may be employed as a transdermal permeation enhancement strategy.
Social Needs Influence Hospital Readmissions among Patients with Diabetes in the Deep South

Cassidi C. McDaniel, Auburn University Harrison College of Pharmacy, Chiahung Chou, Auburn University Harrison College of Pharmacy. Objective: Pharmacists play a critical role in mitigating hospital readmissions among patients with diabetes, and their role might include considering patients’ social needs. Therefore, we sought to identify social needs associated with 30-day readmissions among patients with diabetes in the Deep South and determine the added value of social needs in predicting 30-day readmissions. Methods: This retrospective cohort study utilized electronic health records from a health system in the Southeastern United States. The population included adults with diabetes hospitalized from July 2016-October 2020. The unit of analysis was index hospitalization, where each patient might experience multiple index hospitalizations. The primary outcome was all-cause 30-day readmission (dichotomized). Risk factors (including social needs) were assessed during the 6-month period preceding hospitalization. Chi-square tests evaluated the relationships between social needs and readmissions. To determine the added value of social needs in predicting readmissions, the discriminative ability (represented by the area under the receiver operator curve (AUC)) was compared for the multiple logistic regression model with social needs versus the model without social needs. Results: A total of 26,328 adults experienced 42,110 index hospitalizations, where 15.21% of hospitalizations were followed by 30-day readmissions. Social needs significantly associated with readmissions included activities of daily living, employment, alcohol use, substance abuse, smoking status, housing stability, and social support (all p<.05). Non-significant social needs included education, financial security, living situation, etc. The discriminative ability was significantly higher for the regression model with social needs (AUC=0.6616; 95% CI=0.6530-0.6703) than the model without social needs (AUC=0.6586; 95% CI=0.6499-0.6672), p=.001. Conclusions: Multiple social needs influenced 30-day readmissions among patients with diabetes in the Deep South, so pharmacists could consider social needs when evaluating readmission risks.

Student Knowledge, Confidence, and Perceptions Prior to and Following an Inhaler and Tobacco Cessation Simulation

Anastasia L. Digman, West Virginia University School of Pharmacy, Ashleigh L. Barrickman, West Virginia University, Angela Goodhart, West Virginia University, Tara Whetsel, West Virginia University School of Pharmacy. Objective: To assess changes in knowledge, perceptions, and confidence of second-year pharmacy students after completion of a new, innovative inhaler and tobacco cessation simulation. Methods: A simulation was developed that required students to counsel a standardized patient concomitantly on an inhaler and provide tobacco cessation counseling. To assess perceptions and confidence, a survey was administered pre- and post-simulation. Survey results were compared using Chi-Square analysis. Students were assessed on tobacco cessation content utilizing six examination questions kept consistent from the previous student cohort. Lastly, students completed a tobacco cessation Objective Structured Clinical Examination (OSCE), which was compared to the previous student cohort. Results: Sixty-one students completed the simulation, with 57 (93.4%) and 49 (80.3%) completing the pre- and post-surveys, respectively. Statistically significant improvements in confidence concerning use of motivational interviewing [p=0.008] and ability to establish a quit date via motivational interviewing [p=0.049] were identified. Exam score comparisons revealed improvements in two of the six questions but were not statistically significant. These questions assessed the use of a nicotine patch and actions in the ‘assist’ step of the 5A’s model of cessation counseling. Tobacco cessation OSCE data indicated an improvement in overall student score (72.2%) compared to the previous student cohort (69.0%) and a larger proportion of students achieved the OSCE station cut score (96.5% vs. 87.3%). Lastly, average student OSCE scores improved in gathering patient information (56.61 vs. 45.34) and developing management strategies (71.40 vs. 65.49) compared to the previous student cohort. Conclusions: This new integrated simulation was an effective learning tool, as it reinforced tobacco cessation counseling and increased student confidence and knowledge. Simulations that require students to integrate knowledge and skills are valuable additions to pharmacy curricula.

The Effect of Chemical and Physical Enhancers on Intradermal Delivery of Cromolyn Sodium

Akeemat O. Tijani, East Tennessee State University, Miranda Holman, East Tennessee State University, Dorcas A. Frempong, East Tennessee State University, Jeffrey Klein, East Tennessee State University, Ashana Puri, East Tennessee State University. Objective: This study aimed to design and optimize topical gel formulations for the anti-allergic drug, cromolyn sodium (CS) and explore the use of chemical and physical enhancement strategies to improve its delivery into the dermis. Methods: CS gels were formulated to individually contain 2.5 and 9% salicyloyl caproseate sodium (SNAC) as a potential chemical enhancer. The effect of microneedles as a physical enhancer, alone.
and in combination with SNAC was investigated via in vitro permeation studies. Skin impedance studies and FTIR evaluation of SNAC treated stratum corneum were done and compared to the control. **Results:** The amount of drug delivered in the dermis by the 2.5% and 9% SNAC gel groups was $36.26 \pm 13.05$ $\mu$g/cm$^2$ and $35.87 \pm 2.23$ $\mu$g/cm$^2$ respectively, after 24 h, which were significantly higher than the control ($p<.05$), but were not remarkably different from each other ($p>.05$). Hence, the 2.5% SNAC gels were used in further studies. Microneedles combined with the control group and 2.5% SNAC showed a remarkable difference in permeation ($p<.05$). However, no synergistic enhancement was observed with the treatment group for which microneedles and SNAC were combined ($p>.05$). Over 24 h of treating the stratum corneum with 2.5% SNAC, FTIR evaluation shows stretches on the CH2 asymmetric and symmetric stretching vibrations observed at the wavenumbers $2920.23$ cm$^{-1}$ and $2850.79$ cm$^{-1}$ respectively, in untreated stratum corneum, which shifted to $2924.09$ and $2873.94$ cm$^{-1}$. These usually indicate some lipid fluidizing effect. However, no drop in skin impedance was seen compared to control with the enhancer ($p>.05$). **Conclusions:** The 2.5% SNAC in CS gel formulation and the use of microneedles show promising potential for intradermal delivery of CS.