

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Two-tier mentoring of PGY-1 pharmacy residents in an academic experience

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**Purpose:** The residents' ability to provide information to patients, students and healthcare providers is vital. For those residents seeking academic appointment, their teaching ability will be assessed as early on as the onsite interview. Therefore, it is incumbent upon programs to ensure residents are prepared to provide not only experiential education, but also, didactic. Mentoring is a key aspect to ensuring that residents are adequately prepared to provide education in both settings. Our purpose is to describe the unique two-tier mentoring of PGY-1 pharmacy residents in an academic experience.

**Methods:** All residents participated in a teaching certificate program and received a teaching assignment in one of the various labs (Pharmacy Skills or Professional Abilities) in the Fall semester. Each resident was paired with a pharmacy faculty member who served as a mentor to assist in preparing the topic content. The faculty mentor and/or residency program director observed the resident on the first of a four day lab and provided immediate feedback to aid the resident in improving his or her performance. On the third or fourth day of lab, a faculty member from the division of education would assess the resident in various competency areas. The education faculty member would meet with the residents individually to discuss the assessment. The same would occur in the Spring semester, but the residents would be assigned to teach in one of the labs or a pharmacy elective. At the end of each semester, the residents would meet with the faculty mentor and/or residency program director to also review evaluations completed by the students. A final meeting with the education faculty member would occur to discuss the residents' growth and continued opportunities for improvement.

**Results:** Forty residents received teaching certificates. Twenty-four residents completed the Pharmacy Professional Development in Teaching program developed by the Division of Education at Xavier University of Louisiana. Five residents completed the Teaching Certificate

program administered by the University of Kentucky College of Pharmacy and the other eleven residents completed the online version of the program offered in collaboration with American Society for Health-System Pharmacists (ASHP). The common thread for all offerings was the pairing with a pharmacy faculty member for assigned didactic courses and critical assessment of the teaching by a faculty member in the division of education, usually the chairperson.

**Conclusion:** A two-tiered, multidisciplinary approach involving pharmacy and education faculty members can be an effective method of mentoring pharmacy residents in an academic learning experience.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Evaluative Study

**Poster Title:** Evaluation of a professional presentation development longitudinal learning experience through pre- and post- self-assessment surveys

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**Purpose:** The professional presentation development (PPD) experience is a longitudinal program to develop self-assessment and effective presentation skills through delivery of the required residency presentations in the Postgraduate Year One (PGY1) program. The program meets required American Society of Health-System Pharmacists (ASHP) standards for objectives in self-evaluation and education activity development. The program utilizes annual feedback surveys to improve the experience. With the 2018-2019 residency class, a pre- and post- self-assessment survey were implemented to allow residents entering the PGY1 program to self-identify strengths and areas for improvement in presentation skills and to assess the overall effectiveness of the PPD experience.

**Methods:** The PGY1 PPD experience encompasses multiple presentation types to develop ASHP required PGY1 objectives R3.1.2, R4.1.1, R4.1.2, R4.1.4. Each resident was assigned to a preceptor for quarterly summative feedback while verbal and written formative feedback was provided after each individual presentation. At each of these times residents were required to verbally self-assess their presentation skills. Surveys were developed utilizing core statements from the ASHP Checklist for Presentation Self-Evaluation with the addition and removal of statements to reflect site specific program presentation experiences especially the development of continuing education (CE) presentations. Pre self-assessment surveys were completed in the first quarter prior to any presentation experiences while the post self-assessment surveys were completed in the final quarter. Surveys were composed of 19 statements in which residents were instructed to rate their agreement with the presentation

skills statement according to the following scale: 1 Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA). Pre surveys allowed for residents to write in reported areas of strength and weakness while post surveys included reported areas of strength, weaknesses, and improvement during the PGY1 year. Data was analyzed using descriptive statistics.

**Results:** Eleven PGY1 residents successfully completed the PPD program for the 2018-2019 year. Each PGY1 resident received a pre- and post- survey. The response rate for both the pre- and post- survey was 100%. Of 14 statements relating to all presentations types between the beginning and end of the PPD experience, 7 statements (50%) showed an improvement in the statement, 7 statements (50%) showed no change, and 0 statements (0%) showed a decrease in the statement. Of the 5 statements relating to CE presentations, all 5 statements (100%) showed an improvement in the statement to SA by the end of the PPD experience. All residents reported areas of personal presentation skills improvement throughout the year. Commonly reported areas of personal improvement included audience engagement, confidence in front of an audience, transitions, and presentation development.

**Conclusion:** Self-assessment survey responses indicated overall increased presentation skills by the end of the PPD experience, especially in the ability to develop a CE presentation. A pre- and post- self-assessment survey for the PPD experience allowed for preceptors and residents to identify areas of individual presentation skill development over the period of a PGY1 year. Feedback provided in these surveys will be considered for future improvements to the PPD experience.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Descriptive Report**

**Poster Title:** Curation of digital resources for clinical trial operation to support an Investigational Drug Service rotation

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**Purpose:** The Investigational Drug Service (IDS) provides drug management support to Principal Investigators conducting clinical research. As a component of the Hospital Pharmacy Services, IDS also precept APPE pharmacy students and pharmacy residents through elective rotations. Although there are numerous clinical research resources available on the Web, locating them efficiently could be a daunting task for students or residents who are not familiar with clinical research. Curation of digital resources would give learners a guided overview of the resources available.

**Methods:** The digital resources were grouped by headings in broad categories. The curation process mirrored the scope of IDS in providing drug management support within the clinical research enterprise. Resources and tools that were deemed fundamental to IDS operation were included in a WORD document. For important topics, a brief description of the resources was also given followed by hyperlinks to Web resources. Prior to each student or resident rotation, the IDS preceptor will take a series of steps to ensure the links to curated resources are up-to-date and introduce new links as resources become available. The uniform resource locators will be modified as needed.

**Results:** A curated electronic document containing 8 categories with 28 hyperlinks pointing to the Web with a focus on the framework for the management of investigational drug in clinical research have been developed. The document was made available in WORD and PDF format to maximize cross-platform accessibility. The top page of the document included a hyperlinked table of contents for the topics covered for ease of locating the curated materials. Pharmacy students and residents on IDS rotations were sent the curated electronic document in the digital format of their choice at commencement of rotation. Previous and current editions of the curated electronic documents were archived on an internal shared drive. Examples of

hyperlinks included selected FDA clinical trial guidance documents, Good Clinical Practice, Declaration of Helsinki, the Belmont Report, Code of Federal Regulations Title 45 Part 46, Title 21 Part 312, Expanded Access Program, national guidelines relating to Investigational Drug Service and conduct of clinical research, Clinical Trial Registries, and sample drug accountability record forms.

**Conclusion:** The curated electronic document provided to each pharmacy student or resident served as an introduction to IDS operation in clinical research. The hyperlinked materials also acted as reading lists and topics of discussion for elective IDS rotation.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Implementation of a mental well-being program for pharmacy residents

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**Purpose:** In 2018, the American Journal of Health-System Pharmacy released a practice research report with evidence suggesting the rate of pharmacy resident depressive symptoms are higher than reported rates in medical students and the U.S. general population. During the residency year, pharmacy residents endure heavy workloads, persistent lack of sleep, and the constant pressure of high expectations for performance. Pharmacy residency programs across the country need to address the issue of depression, anxiety, and increased stress among residents.

**Methods:** St. Elizabeth Healthcare developed a mental well-being program. The main tactics of the program are to increase awareness of mental health, to provide residents with confidants, and to develop skills to cope with anxiety and stress. The overall aim is to prevent depressive symptoms and promote mental well-being. The program is composed of three elements. The first is a corporate Employee Assistance Program offering education on common struggles for healthcare employees and eight confidential counseling sessions. The second is a resident's mentor monitors mental health and documents the resident's evolution in a new section of the resident development plan titled mental well-being. The last element is Body Mind Skills sessions taught by a certified preceptor on a quarterly basis. Since January 2019, all residents are required to participate in the program. Upon graduation, residents are asked to complete a voluntary survey on the overall benefits of the program. The survey included the following 5 questions. Were you made aware of the available resources at St. Elizabeth Healthcare? Did you feel comfortable talking about your mental well-being with your mentor? Was your mentor able to help you to identify ways to help improve your mental well-being? Did you utilize the strategies provided by the Mind Body Skills sessions? Did your ability to implement strategies to enhance mental well-being improve after the mental well-being program started?

**Results:** Five out of eight residents completed the post-implementation survey. 100% of residents said they understood the resources available at St. Elizabeth Healthcare. 60% of the residents felt comfortable speaking with their mentor about their mental well-being and their mentor was able to help them identify ways to improve their well-being. 40% of the residents utilized the strategies learned in the Mind Body Skills session and 75% of the residents felt their ability to implement the different strategies improved after the mental well-being program began.

**Conclusion:** The mental well-being program at St. Elizabeth Healthcare ensures residents understand the resources available to promote mental well-being. Residents have accessible mentors to confide in throughout the residency year. Finally, residents learn skills to cope with anxiety and stress and are successful at implementing strategies to combat depressive symptoms and improve their overall mental well-being.



## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Evaluative Study**

**Poster Title:** Implementation of a pharmacy student medication reconciliation and review for medical residents' patients: a multidisciplinary approach to optimize medication therapy

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**Purpose:** Medication therapy problems (MTPs) are a national health problem accounting for one out of every 131 outpatient deaths. While studies have investigated medication reconciliations during transitions of care, there is limited data on pharmacist-directed medication reconciliation in outpatient primary care settings. A barrier to implementation is pharmacist access and/or availability. A potential solution is to utilize pharmacy students as "pharmacy extenders" to provide a consistently available medication reconciliation service. The purpose of this quality improvement project is to evaluate the impact of pharmacy students providing medication reconciliation and review for high-risk patients presenting for primary care appointments with medical residents.

**Methods:** This is a retrospective descriptive study of a quality improvement initiative that occurred from May 2017 to May 2019. Two afternoons each week, during a Medicine-Pediatrics medical resident clinic, one to two pharmacy students on advanced pharmacy practice experiences ambulatory care rotations provided a medication reconciliation and review for scheduled patients who had more than a specified number of medications on their medication list (five during year 1, eight during year 2). Prior to the appointments, the pharmacy students would review the schedule and identify patients meeting inclusion criteria. For those patients, the pharmacy students would review charts, identify preliminary MTPs, meet with the patient for five minutes to conduct a medication reconciliation, verbally communicate relevant information and MTPs to the medical resident, document the encounter in the patient's electronic health record, and then document study outcomes. As appropriate, the pharmacy students would also review patient-provided records and prescription bottles, call patients' pharmacies, schedule follow-up appointments with a pharmacist for further discussion, and/or

obtain a physician referral for clinical pharmacy services via collaborative practice agreements. Primary outcomes included number of medication discrepancies and number and type of MTPs identified. This study was deemed exempt by an institutional review board.

**Results:** Over 24 months, 30 different pharmacy students (precepted by 3 different pharmacists) provided medication reconciliations for 157 patients who were seen by one of 12 different medical residents. The mean number of listed medications was 11.3 per patient. A total of 680 medication discrepancies were identified with a mean of 4.3 discrepancies per patient. The pharmacy students identified 287 MTPs with a mean of 1.8 MTPs per patient. Of those MTPs, 131 (46%) were resolved during the appointment. In year 1 when inclusion criteria required more than 5 listed medications, the mean number of medications was 11.8 per patient, mean number discrepancies was 4.6 per patient, and mean number of MTPs was 2.7 per patient. In year 2 when inclusion criteria required more than 8 listed medications, the mean number of medications was 12.9 per patient, mean number discrepancies was 5.1 per patient, and mean number of MTPs was 1.6 per patient. Patients with greater than 10 listed medications had a mean of 2.1 MTPs, and patients with less than 10 listed medications had a mean of 1.0 MTPs. The mean time spent by a pharmacy student on each patient was 19 minutes.

**Conclusion:** Pharmacy student and medical resident collaboration led to substantial improvements in patient care as documented by resolved medication list discrepancies and MTPs. This team-based approach also provided opportunities for interdisciplinary education and interaction for two distinct types of learners (medical residents and pharmacy students). Future studies should seek to evaluate the impact of this type of intervention on clinical outcomes.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Residency research team: Two-year review of a pharmacist-run residency research training program

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**Purpose:** Prior to 2016, the pharmacy residency program had a longstanding relationship with a research pharmacist who served as the liaison between the program and the institution's Research department. When the research pharmacist left the organization, a Residency Research Team was created to assist the post-graduate year one (PGY1) managed care pharmacy residents and post-graduate year two (PGY2) ambulatory care pharmacy residents in meeting their respective program's objectives for conducting projects. The purpose of this report is to review preceptor learnings from establishing and participating in this team to support the two residency programs.

**Methods:** The team comprised a Research Team Lead and two Research Team members who were residency trained and experienced with poster presentations and research project publication. The team members' job responsibilities were diverse and included practice in both the managed care and ambulatory care settings.

The team members completed several trainings on research through continuing education and certification. They designed a program called the Residency Research Series (RRS), didactic training on research topics such as literature review, writing a research project proposal, creating a poster, giving a podium presentation, and creating a research manuscript. The RRS served as a starting point, from which residents completed each step in their research project and were able to gauge their progress at any point in time.

Each research team member works with the research preceptor and the resident as a Project Unit. The structure of the Project Unit supports the resident at each step of the project process. The Project Unit also meets with other members of the Research Team and Residency Program Directors at each major milestone; i.e., prior to IRB submission, poster development for

national presentation, podium presentation at the residency conference, and final manuscript creation.

The team also presents to preceptors during Residency Advisory Committee meetings and is involved in clinical pharmacy project development and implementation outside of the residency program.

**Results:** Following the establishment of the Research Team, the number of research project proposals have increased (8 projects in the 2017-2018 year compared to 4 projects in the 2015 - 2016 year).

Qualitative feedback from preceptors reveal that they feel more comfortable proposing a research project idea and mentoring a resident through the process with the support of a Research Team member. Each year since, at least two poster presentations have been made by a preceptor outside of the residency program compared to zero to one presentation in previous years.

Preceptors also noted that the residents gained more confidence in conducting their projects as they continued to participate in the RRS and engage with the Research Team. Residents moved from Needs Improvement and Acceptable ratings (2, 3) to Above Average ratings (4) on multiple objectives including creating a feasible study design and creating a publishable manuscript. Residents are also taking an interest in publishing their research projects upon graduating from the residency. Twenty-five percent of the residents who have been trained by the Team are actively pursuing publication.

**Conclusion:** The Residency Research Team has led to increased interest in conducting research projects in the institution. Clinical pharmacists feel more comfortable proposing projects and precepting residents. There has also been an increase in poster presentations since the Team's establishment. Clinical pharmacists view being a part of the Research Team as a leadership opportunity within the residency program.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Descriptive Report**

**Poster Title:** Employing ambulatory care residents as pharmacy service extenders in community medical outreach

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**Purpose:** Medical outreach in local communities is a unique yet effective way to reach individuals with barriers to accessing care and provide needed health screenings and preventative and primary care services. While their presence is slowly increasing in the primary care setting, rarely are pharmacists providing services at local medical outreaches which would offer medication management and help bridge gaps in care. The purpose of this project was to extend pharmacy services to individuals receiving care through outreach clinics delivered by a community health center medical team by utilization of an ambulatory care resident.

**Methods:** A residency preceptor designed a longitudinal learning experience, Wellness, Health Promotion & Outreach, in collaboration with a community health center medical outreach service. Residents were required to initially attend and observe 2-3 outreach clinics and existing services to evaluate and determine a prevalent health and wellness improvement, disease prevention need, or educational need related to public health at the site. Residents were then assigned to develop a pharmacy service program to meet the found need in collaboration with health care team members, the preceptor, and clinic administration. Residents subsequently implemented their designed services in addition to program and outcome evaluations. Residents finally conducted a program review and presented an outcomes report to key stakeholders.

**Results:** Two ambulatory care residents designed 2 distinct pharmacy service programs. One pharmacy service included diabetes and hypertension education by the pharmacist at an outreach. Diabetes and hypertension patient educational materials and the process for distribution and related counseling were developed, documented, approved and utilized during future outreaches. The other pharmacy service included the development of 2 immunization protocols for use by pharmacists, or trained student pharmacists under the supervision of a

pharmacist, to vaccinate participants at future community health center outreach events. Influenza and tetanus, diphtheria, and pertussis vaccination protocols were developed as vaccination standing orders as allowed by state law. Policies and procedures regarding screening, precautions, Vaccine Information Statements, administration, documentation, medical emergency management, and adverse event reporting were also developed. Immunization protocols remain under review by the health center's Board of Directors and administration. Informal yet documented surveys to evaluate development and integration of new pharmacy services were administered to the medical outreach health care team members. All members who responded provided positive feedback on new pharmacy services implemented. Additional feedback for improvement was also provided for future consideration. An average of 10 patients participated and interacted with pharmacy residents in each outreach clinic that included pharmacy services.

**Conclusion:** Development of a community medical outreach residency learning experience provided a unique way to meet residency goals and objectives while simultaneously increasing access to care through the extension of pharmacy services to patients who would otherwise not receive them.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Escape room activity to teach formative and summative evaluations in a PGY1 program

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**Purpose:** The purpose of this fun and unique learning activity is to introduce PGY1 residents to the process of providing effective feedback. The resident also has the chance to practice delivering formative and summative feedback after completing the activity.

**Methods:** As part of the orientation learning experience, an escape room activity was created to introduce the resident to the process of providing formative and summative assessments. Mock assessments were created in Pharmacademic and linked to team building and leadership learning objectives. Assessments were made available to the resident and preceptors to fill out after completion of the activity.

**Results:** During the last week of orientation the resident and preceptors participated in an escape room activity. Throughout the activity participants were able to provide feedback on each other's performance. Each person's individual leadership style was revealed as the team worked together to escape the room within the sixty minute time frame. The team successfully completed the challenge. A conversation ensued with each team member providing formative feedback on what worked well, what could be done differently, and next steps for improvement. The resident was then tasked to submit a summative self-evaluation of her performance in the activity as well as an evaluation of the overall learning experience. Preceptors were tasked to complete a summative evaluation of the residents work.

**Conclusion:** This novel learning activity is a fun and entertaining way to introduce and teach residents the process of formative and summative evaluations. This activity could also be use to train new preceptors and with pharmacy student learners on APPE.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Descriptive Report

**Poster Title:** Redesign of an advanced hospital APPE rotation utilizing lean methodology at a community teaching hospital

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**Purpose:** New Hanover Regional Medical Center (NHRMC) pharmacists precept approximately 30 APPE students annually, averaging 100 rotations in an academic year. In anticipation of expanding the number of APPE students onsite, student and preceptor feedback was collected to identify rotations that required optimization. Preceptors and students identified the Advanced Hospital rotation as a primarily observational experience lacking both consistency and direct patient care. A rotation redesign was completed to ensure students are receiving a consistent experience including operational aspects and direct patient care.

**Methods:** Lean methodology was utilized by conducting an A3 with stakeholders. Problem analysis revealed students spent time observing because they rotated in up to 15 sites in the pharmacy department, with preceptors changing frequently. Ideal state envisioned students spending the majority of time providing direct patient care, supporting pharmacists as extenders while gaining knowledge through practice. The countermeasures identified included a rotation schedule that supports participation over observation and an electronic, rotation workbook to assist preceptors in providing a consistent experience. Pharmacists are provided learning activities for each position to minimize variability. The rotation schedule clearly describes who, what, when, where, and utilizes day, evening, and weekend shifts. The workbook includes pre-reading, defines position activities, and didactic activities to solidify the knowledge gained through practice. After designing ideal state, a preceptor subgroup designed the schedule, developed a workbook, and provided preceptor education. The schedule was templated to accommodate up to four students per rotation. The rotation is organized in two-



week blocks. Students are scheduled in operational and dispensing activities, including order and product verification, IV center, and OR pharmacy for one block. The second block is focused on direct patient care in the adult medical-surgical population. Students complete medication histories, patient education, and consults under preceptor supervision.

**Results:** After redesigning the Advanced Hospital rotation the number of rotating sites decreased from 15 to 5. The number of preceptors decreased from 15 to 10. Students reported participating 80% of the time over observation. Students increased the number of medication histories completed from an average of 6 (range 0-16) per rotation to an average of 19 (range 10-22) per rotation. Students expanded direct patient care services on evenings and weekends, as pharmacist extenders. Pharmacists and technicians provided positive feedback on the clear daily expectations outlined for each position. Students appreciated the organization of the electronic workbook. The schedule design has comfortably accommodated up to three students per rotation month, with room to expand to four students if required.

**Conclusion:** Utilization of lean methodology resulted in a successful redesign of an Advanced Hospital rotation. It is imperative to remain disciplined to meet a short timeline for a project that incorporates sweeping change within the department. Simple solutions can lead to sustained standardization by setting preceptor and student expectations using written checklists. Moving forward, students will be incorporated into the department strategic plan to align activities to department goals. NHRMC will continue to identify student activities to contribute to the department and expand their role as a pharmacist extender.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Evaluative Study**

**Poster Title:** Examining student self-awareness of performance on Entrustable Professional Activities given context of preceptor evaluations

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**Purpose:** In experiential learning, student self-evaluation of their knowledge and skills is used to determine students' self-awareness. However, students may lack self-awareness leading to overconfidence which can be remediated with time and practice (Austin Z. 2007; Mort JR. 2010). At our institution we ask learners to self-assess their performance on Entrustable Professional Activities (EPAs). The purpose of this study is to investigate if students can accurately self-evaluate performance on EPAs during practice experiences and if their accuracy and therefore, self-awareness, improves over time.

**Methods:** This is a retrospective study that examines students' self-evaluations of performance during Introductory (IPPE) and Advanced (APPE) Pharmacy Practice Experiences. The data was collected from both student and preceptor final evaluations at three time points: T1 or Direct Patient Care IPPE (PY2 or PY3 year); T2 or First Direct Patient Care APPE (PY4) and T3 or Last Direct Patient Care APPE (PY4). The primary endpoint is change in self-awareness accuracy over time, with accuracy being assessed by the absolute difference in levels of entrustment between student self-assessment and preceptor evaluations. Measuring accuracy is typically correlated with confidence, and a subject's confidence can be used to indicate level of awareness (Fleming and Lau 2014). The secondary endpoint examines if accuracy over time is dependent on level of student performance, that is, are better performing students more accurate. As such, we compared levels of accuracy between groups of students divided into performance quartiles. The tertiary endpoint examines if student accuracy for individual EPAs change over time. Student and/or preceptor evaluations were excluded if they were not completed. Additionally, if a preceptor or student noted "N/A" for a specific EPA, this was not included in our statistics. For each endpoint, we performed a repeated measures ANOVA to analyze student accuracy

over time with a paired t-test post-hoc analysis using a Bonferroni adjustment to determine the location of differences.

**Results:** For the primary endpoint, global accuracy, we found accuracy improved over time ( $p < 0.001$ ) with time point one ( $T1=0.52$ ) being more inaccurate than time point two ( $T2=0.26$ ) and time point three ( $T3=0.27$ ). For the secondary endpoint, students were divided into performance quartiles and we found similar findings with both the higher performing students ( $T1=0.53; T2=0.29, T3=0.21$ ) and lower performing students ( $T1=0.70; T2=0.24 T3=0.31$ ) showing significant improvement in accuracy over time ( $p < 0.001$ ). Notably, lower performing students started at a more inaccurate baseline ( $p=0.06$ ) and, although improved, achieved a lower level of accuracy at T3 than high performing students ( $p < 0.05$ ). When examining each EPA for accuracy changes over time, we found that individual EPAs showed the same significant trend ( $p < 0.001$ ) as global scores, with the predominant difference occurring being between time point one (T1) and time point two (T2) and T1 and time point three (T3). One notable exception can be seen in the improved accuracy of students assessing EPA 9 (document patient encounters and services provided), which showed a significant difference ( $p < 0.05$ ) at all time points.

**Conclusion:** Students' self-awareness of performance on EPAs improves over time. In all EPAs, the significant improvement in accuracy occurs between the students' Direct Patient Care IPPE and their first Patient Care APPE. EPA 9 showed a significant improvement at each time point. Divided into performance quartiles, lower performing students demonstrate lower levels of self-awareness and accuracy than higher performing students, but self-awareness for all students improves significantly over time. This evidence suggests the importance of early exposure to direct patient care activities, and self-evaluation of EPAs are beneficial to student development and lead to improved self-awareness of their performance over time.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Descriptive Report

**Poster Title:** One year after the National Guideline Clearinghouse shutdown: is there a clear winner for pharmacists among freely available, guideline-focused websites?

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**Purpose:** Following the shutdown of the National Guideline Clearinghouse (NGC, also known as guidelines.gov) in July 2018, pharmacists were left with fewer options for freely available, guideline-focused resources. As of June 2019, several free guideline-focused websites were available, including Guidelines International Network (G-I-N), Turning Research into Practice (TRIP), Guideline Central, and the new ECRI Guidelines Trust (ECRI). Shortly following the shutdown of NGC we anecdotally compared 3 of these sites but were not able to identify a clear winner. Now almost one year after the NGC shutdown, this descriptive report summarizes the quality and usability of all 4 sites.

**Methods:** A search of 5 pre-defined disease states (heparin induced thrombocytopenia, ulcerative colitis, cutaneous melanoma, pulmonary hypertension, and tobacco cessation) was performed on G-I-N, TRIP, Guideline Central, and ECRI to identify guidelines included in their collections. Before searching, the authors compiled a list of 2 expected guidelines for each disease state (defined as widely used United States guidelines that address treatment) based on the authors' experience and/or inclusion in subscription-based medical resources (UpToDate and DynaMed). For each of these disease states, at least one of the expected guidelines had been released within a few months prior to the search. Each website was assessed by comparing the total number of search results, the proportion of the guideline results that were relevant to pharmacists practicing in the United States, and whether both of the expected guidelines appeared in the search results. Searches were performed independently by 3 pharmacists to represent real-world variability in search strategies and clinical judgment in determining relevance. All searches were performed within a 1-week time period to prevent temporal confounding due to website collection updates.

**Results:** The number of search results varied among the 3 pharmacists for every disease state. Variability was seen for every search performed in Guideline Central and in several searches performed in TRIP, G-I-N, and ECRI. Differences in search strategies included use of Boolean operators, quotation marks around search terms, and disease state synonyms (e.g., tobacco cessation and smoking cessation). There were no trends between individual pharmacists and the number of search results. Searches in TRIP yielded the largest number of results but also the smallest proportion of relevant guidelines. For example, the percentage of results for ulcerative colitis considered relevant ranged from 50-100% in G-I-N, 3.7-14.6% in TRIP, 0-100% in Guideline Central, and 33.3-66.7% in ECRI. Conclusions from all 3 pharmacists were identical regarding the expected guidelines despite using different search strategies; however, none of the sites were fully inclusive and both predefined, expected guidelines appeared in only 1 search for 1 disease state. Anecdotally, pharmacists noted both benefits and drawbacks in the usability experience and quality of results for each website. Common concerns included a lack of guidelines authored by organizations other than professional medical societies and different results from the same site depending on how the site was searched.

**Conclusion:** Identifying an alternative to the NGC is needed, especially for pharmacists who rely on freely available resources in practice. Based on our experience with these 4 major guideline-focused databases (G-I-N, TRIP, Guideline Central, and ECRI), an easy to use freely available resource is still lacking. Given the variability of these websites and that no website included all expected guidelines, pharmacists may need to search professional organization websites and PubMed/Medline in conjunction with guideline-focused websites in order to find the most current, high quality guidelines. Additionally, guidelines should be evaluated for quality and currency prior to implementing recommendations into practice.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Descriptive Report

**Poster Title:** Longitudinal education residency learning experiences provide opportunities to precept student- pharmacist activities in a non-teaching hospital

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**Purpose:** Residents are instructed on the theory of small group teaching and precepting through teaching certificate courses and activities. The formalized teaching certificate programs may also include simulation and development of teaching plans and activities. Our non-teaching, community hospital has 3 PGY-1 resident pharmacists and has up to twelve pharmacy students on rotation per experiential timeframe. The purpose of this project was to have residents design and implement student activities throughout the residency year utilizing Bloom's taxonomy and the four preceptor roles.

**Methods:** Residents are introduced to Bloom's taxonomy and the four preceptor roles at orientation and as part of the formal teaching certificate program in collaboration with a local school of pharmacy. The longitudinal education rotation is a core experience for residency completion, and includes the following requirements that may be met through interactions with the students: facilitates 3 topic discussions; participates in at least 6 speed journal club sessions; evaluates IPPE students and provide feedback; creates a plan to utilize the 4 preceptor roles when precepting; creates and implements a "preceptor boot camp activity"; mentors at least 4 APPE case presentations. These activities meet the following learning objectives: use effective presentation and teaching skills to deliver education; appropriately assess effectiveness of education; when engaged in teaching, select a preceptor role that meets learners' educational needs; effectively employ preceptor roles, as appropriate. During the activities, residents were introduced as "Dr." and as the "co-preceptor" for the activity. They led the events, provided feedback, and any outstanding assignments/questions were forwarded to them by the students as necessary. Scheduling of the activities is in collaboration with clinical faculty, residency coordinator, and residents.

**Results:** This program was formally implemented with the incoming residents in July 2016. Since then we have had 8 residents and 110 students participate. Data on resident activities were compiled beginning with the July 2018 residency class (3 residents). Residents led 10 topic discussions, participated in 4 speed journal club sessions, had 3 IPPE students assigned to residents, developed and implemented 3 teaching plans, and mentored and gave feedback during 7 case presentation mentoring sessions. Reflections from residents indicate that this collaboration provided positive experiences and that they began to see themselves as a leader and preceptor, and no longer a student.

**Conclusion:** Having residents participate in precepting pharmacy students offers additional learning opportunities for students as well as the opportunity for resident to apply principles of teaching theory into practice.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Descriptive Report

**Poster Title:** Incorporation of PGY-1 pharmacy residents into a pharmacogenomics (PGx) service for the Program of All-inclusive Care for the Elderly (PACE)

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**Purpose:** Several studies demonstrated pharmacist-led pharmacogenomics (PGx) services can aid healthcare providers caring for older adults with polypharmacy with decreasing hospitalizations and emergency department visits and saving costs. In mid-2014, our institution began offering PGx services for the Program of All-inclusive Care for the Elderly (PACE), as a value-add component. Commencing with our 2018-19 PGY-1 pharmacy residency, we required residents to participate in a 3-month block rotation, whereby they led PGx services and collaborated with the PACE interdisciplinary team (IDT) during polypharmacy calls. The purpose of this experience was to enhance PGx knowledge and leadership skills of PGY-1 pharmacy residents.

**Methods:** The residents received training from the pharmacist preceptor in charge of leading the PGx service on various PGx-related topics and processes during the first week of their respective block rotations. Topics included interpreting PGx test results; assessing for drug-gene interactions (DGIs), drug-drug-gene interactions (DDGIs), and phenoconversions; and applying genetic results to patient cases. Processes included training on our institution's clinical decision support system (CDSS); facilitating PGx testing, including prescriber ordering and dispensing; and conducting consultations. Practice PGx consultations, ranging in complexity, were given to residents in order to simulate actual patient cases and reinforce PGx concepts during initial training. These consultations were reviewed by the preceptor and continued until the resident was considered competent. Thereafter, the residents conducted actual PGx consultations for patients and then met with the preceptor to review each consultation before it was signed off and shared with the ordering prescriber. As part of the PGx service, our institution organized



polypharmacy calls with the PACE IDT to review patient consultations. During these telephone-based encounters, residents reviewed recommendations from the PGx consultation, garnered patient-specific information from the IDT, and amended recommendations in this context, as warranted.

**Results:** The preceptor provided formative feedback to the residents throughout their respective block rotations. This feedback was related to proper utilization of our institution's CDSS; adequate execution of the PGx-related processes; appropriate identification of DGIs, DDGIs, and phenoconversions; and competent interaction with the PACE IDT. Formal feedback at the midpoint and end of the rotation was documented in PharmAcademic. The residents provided feedback regarding the rotational experience to both preceptor and residency program director. Alterations to the experience have been made based upon residents' feedback, as well as evolving PGx service requirements.

**Conclusion:** Including PGY-1 pharmacy residents into a pharmacist-led PGx service for PACE, as a component of core block rotations, provides residents with the opportunity to enhance their PGx knowledge and leadership skills. In an increasingly applied field of PGx, these knowledge and skills are necessary for preparing residents for the present and future of pharmacy practice. Future alterations to this experience include restructuring to a longitudinal rotation and enhancing introductory training to create more robust patient-care directed experiences.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Research-in-Progress**

**Poster Title:** What is learning for \$600? Using a competitive game show model to enhance pharmacy and medical residents' learning

**Primary Author:** Marilyn Means, **Organization:** Banner University Medical Center South Campus; **Email:** marilyn.luk@gmail.com

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**Purpose:** As pharmacists and medical interns enter their newest challenge as residents, it is important to consider how to maximize learning without any related burnout. A number of studies have explored the use of games to increase engagement and enthusiasm with great success. Similarly, it has been shown that games allow for a less stressful environment which allows facilitation of discussion. The purpose of this study is to evaluate how using a competitive game show model, such as Jeopardy, can enhance pharmacy and medical residents' learning experience.

**Methods:** Pharmacy students or residents on drug information rotation assisted with moderating a Jeopardy style academic hour. For pharmacy learners, a variety of categories were chosen ranging from broad topics such as diabetes or critical care to more specific topics, such as acetazolamide. Researching the topics gave the pharmacy learners the opportunity to review guidelines or learn new concepts and choose out the most pertinent points. The drug information rotation learners then turned the main concepts into Jeopardy questions and used an electronic format to present the game to other pharmacy residents, students and staff. Medical interns were presented Jeopardy style games during new resident orientation to review the interns' understanding of the pharmacy orientation. Residents were divided into four teams and given a game show answer buzzer. Jeopardy music was often played to help create a game show like atmosphere. Pharmacy preceptors were paired up with a resident but oftentimes served as lifeline for help instead of being an active competitor. Pre and post learning questions were collected, as well as additional feedback and comments. Data is still being collected at this time from the incoming pharmacy residents as well as medical interns.

**Results:** Not Applicable

**Conclusion:** Not Applicable

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Pharmacist-Intern Led Disease State Discussions: Impact on Self-Assessment Proficiency

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**Purpose:** The goal of an Advance Practice Professional Experience (APPE) for pharmacist-interns is to integrate, apply, reinforce, and advance their knowledge. During clinical experiences, a review of applicable disease states provides the pharmacist-intern the opportunity to refresh latent knowledge in the context of practical application. Ambulatory care preceptors at Harris Health System have traditionally conducted disease state discussions. Previous feedback from preceptors and pharmacist-interns expressed a desire to increase individual intern participation during the discussions. A new process was implemented to allow the APPE pharmacist-interns to become discussion leaders and promote confidence in addressing and managing the selected disease states.

**Methods:** An Ambulatory Care Pharmacist-Intern Experience Disease State Medication Management Discussion Manual was created. The twenty-two page manual reviews the purpose, process, preparation instructions, recommended timeline, grading rubric, and list of preceptor approved core concepts. The manual also provides guiding questions to conduct the disease state or topic discussion for the intern based on their assigned preceptor. Pharmacist-interns are encouraged to work with their preceptor to prepare and conduct the discussion in an engaging manner of their choosing. The audience consists of pharmacist-interns matriculating at the same time at different ambulatory care sites within Harris Health System. Manuals were disseminated via email to each pharmacist-intern two weeks prior to the start of the rotation period and reviewed during onsite orientation at the start of the experience. Pre-discussion and post-discussion surveys were also disseminated to participants email via SurveyMonkey.

The pre-discussion survey asked participants to rank their knowledge of assessment ability, efficacy and safety of treatment options, and ability to educate patients on their assigned disease state or topic from excellent to poor.

The post-discussion survey asked participants to rank their knowledge and ability again as well as provide feedback on the discussion process. Areas assessed include: evaluation of the process, colleague, level of preparedness, contribution to teaching style, and preceptor oversight.

**Results:** Survey data reflected positive outcomes resulting from the pharmacist- intern led discussion process. Participants more often ranked self-assessment of knowledge and ability as Excellent or Very Good at follow up. Pharmacist- intern self-assessment categories included: knowledge of assigned disease state (7% & 21% vs. 35% & 39%), knowledge of assessment of assigned disease state (7% & 25% vs. 30% & 52%), knowledge of efficacy and safety of treatment (14% & 25% vs. 30% & 43%), and ability to educate patients (14% & 36% vs. 39% & 43%). Process evaluation reflected similarly positive results.

**Conclusion:** The adoption of a pharmacist-intern led discussion process resulted in increased participant engagement, self-reported familiarity with assigned disease state and ability to educate patients.

The pharmacist-intern led discussion process allowed students to engage each other and discuss concepts that would better prepare them for future practice experiences. This was confirmed with the results from the post-survey. With this implementation, the students were encouraged to discuss the information and enhance their knowledge.

Therefore, the emphasis was not trying to make students experts in the topic discussion, rather knowledgeable and confident in their topic. Ultimately, this reinforced professional development of the students.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Evaluative Study**

**Poster Title:** Implementation of an innovative pharmacy residency interview format

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**Purpose:** Traditional interview processes and application materials provide valuable information about pharmacy residency candidates. However, information regarding a candidate's professional or soft skills and general fit in an organization are not easily gained from traditional methods. Furthermore, traditional interview methods do not highlight qualities of a residency program that the Millennial generation values most such as culture and a sense of community. To combat these shortcomings, VA Black Hills Health Care System (VABHHCS) Pharmacy Residency Program, reevaluated and redesigned their interview format. The focus of this project is to describe the VABHHCS interview process and its benefits.

**Methods:** In 2015 the VABHHCS Pharmacy Residency Program began looking for ways to improve their interview processes. Until that time, VABHHCS residency interview format consisted of interviews with multiple panels including of preceptors, current residents, and pharmacy supervisors. A review of innovative, non-traditional interview models was conducted. Reverse interviewing and Multiple Mini Interview (MMI) formats were two such formats that were studied. It was decided to create a hybrid format that incorporated traditional interview, reverse interview, and MMI. A full day interview was planned. The morning session of the interview was spent presenting information to the group of candidates about the program and allowing candidates to ask questions in a reverse interview format. The afternoon portion of the interview combined traditional interview techniques with the MMI format. Candidates rotated through activities including a formal interview with the Residency Program Director and Chief of Pharmacy, a facility tour, a presentation on a non-pharmacy topic, and a communication exercise. Candidates were paired up for the presentation and communication exercise. Candidates evaluated their partner's presentation skills and worked

together with their partner to solve a scenario-based, simulated situation. Preceptors were assigned to each activity and scoring rubrics were created to assess candidate's performance. The scores were used to assist in ranking candidates for the Match.

**Results:** The new, innovative interview process was first completed for the 2016-2017 residency year. It has continued with few modifications since that time.

When asked about the interview format, current residents reported they enjoyed the interview format. They appreciated the time to ask questions, tour the facility, and interact with other candidates. They did feel that the format showcased the culture and sense of community within the VABHHCS pharmacy, which they considered important when selecting a residency program. Preceptors enjoy the increased involvement and interaction with candidates. Since implementing this innovative interview format, VABHHCS has matched with residents during phase one of the Match for eleven out of twelve positions. The position that did not match during phase one was filled with a candidate who interviewed at VABHHCS.

**Conclusion:** The innovative residency interview process implemented at VABHHCS has been successful. Residents and preceptors alike expressed satisfaction with the format. It provides an opportunity for candidates and the program to evaluate a candidate's fit for the program, which is something that traditional interview formats lack. The high rate of matching residents during phase one of the Match is further evidence of the interview format's success.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Descriptive Report**

**Poster Title:** Student perceived ability to obtain medication histories and complete medication management type activities after a restructure of the IPPE model at a large academic hospital.

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**Purpose:** Determine student perceptions of their abilities to obtain medication histories and complete medication management type activities after a restructure of the IPPE model within an academic medical center.

**Methods:** The site restructured their IPPE model to increase exposure for all IPPE students to other areas of health-system pharmacy beyond their individual preceptor's work setting. The restructure carved out 25 hours for all IPPE students to have dedicated exposure to: a standardized orientation to the health system environment; participating in inventory and packaging of medications; obtaining medication histories and performing medication reconciliation for new admissions; verification of compounded sterile preparations (CSPs); practice answering common drug information questions and performing common calculations encountered within the hospital setting; reviewing the flow from prescribing to dispense to administration of medications; managing drug shortages; reviewing the impact of pharmacy in developing the electronic medical record; and exploring the existence of narcotic diversion within healthcare.

Students were asked to complete a voluntary survey prior to beginning their P4 Advanced Pharmacy Practice Experience (APPE) rotations to gather information on their perception of their ability to complete the activities encountered during their IPPE rotation. The students were asked to rank their comfort level for each of these activities for preparation for future rotations using a 4 point Likert scale.

**Results:** Eighty- one students completed IPPE rotations at the site in 2018 of which 27 (32%) completed the survey. Overall students indicated agreement with their ability to perform



common activities in a health system setting. Students answered agree or strongly agree to their ability to: describe the prescription to administration process of medications within the health system setting (93%); perform calculations to prepare and administer medications (81%); review and approve compounded sterile preparations (67%); utilize appropriate references to determine medication stability and administration information (78%); answer common pharmaceutical and legal questions (89%); gather medication histories within the acute care setting (81%); and discuss strategies to minimize narcotic diversion within the health care setting (89%).

**Conclusion:** Students demonstrated a high level of perceived ability to gathering medication histories and perform other medication management type activities within the hospital setting prior to starting future APPE rotations.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Research-in-Progress**

**Poster Title:** Impact of student pharmacists in a laboratory call back program at a primary care clinic

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**Purpose:** Due to advances in health care, there are longer life expectancies, leading to an increased proportion of geriatric patients with complex medical conditions. Ambulatory care pharmacists play an integral role in primary care clinics and help improve quality metrics by providing education and modifying existing drug therapy under collaborative drug therapy management (CDTM) agreements. As focus has shifted towards value-based healthcare, pharmacists play a role in closing quality metrics. The objective of this project is to evaluate the impact of advance pharmacy practice experience (APPE) students in a laboratory call back program.

**Methods:** Laboratory results were sent via secure messaging from providers in a primary care office to a pharmacist preceptor through the electronic medical record (EMR). For this project, patients were chosen under the provider's discretion based upon laboratory values that were not at goal. APPE students were provided copies of the laboratory data as well as a medication list and had thirty minutes to evaluate the patient. Students had the opportunity to collect additional patient data from the EMR with the pharmacist preceptor. After, students verbally presented the patient to the pharmacist preceptor using the pharmacists' patient care process (PPCP) template. Under direct supervision of the preceptor, APPE students called the patient, reviewed lab results, collected additional patient information, provided disease state management, counseled on medications, diet, and lifestyle management, recommended follow up encounters, blood work, and referrals to other healthcare professionals and resources. Data collected included patient demographics such as age as well as time spent on each encounter, number of medications added/directions changed, number of medications discontinued/held, number of monitoring parameters ordered, and disease states that patients were educated on. After the call, a note was placed into the EMR by the pharmacist preceptor and medications and laboratory monitoring was ordered via a CDTM agreement by the pharmacist preceptor.

**Results:** A total of 128 patients were called between May 22, 2019 and July 19, 2019 with a total of 239 disease states. On average 23 minutes were spent on each encounter and 136 medications were added/had directions changed, 13 medications were held/discontinued, and 44 additional laboratory monitoring parameters were ordered under a CDTM agreement. The most common disease state counseled on was hyperlipidemia (38%; n=90) followed by diabetes mellitus (18%; n=42) and pre-diabetes and vitamin D deficiency (13%; n=31 each).

**Conclusion:** Utilizing student pharmacists in a laboratory call back program was shown to be beneficial in a primary care clinic. Student pharmacists spent a total of 2,935 minutes conducting telephone calls, allowing other health care providers to practice at the top of their license. In addition, patient received proper education in regards to their disease states. This may prevent potential disease-state complications in the future.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Evaluative Study**

**Poster Title:** We are studying this topic to express our sincere interest in the lack of original Letters of Intent

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**Purpose:** Plagiarism occurs in personal statements submitted for medical residency applications. It is unknown if plagiarism occurs in Letters of Intent submitted for PGY-1 pharmacy residencies and if so, how plagiarism affects interview invitations and/or rank list placement. We hypothesized the percentage of plagiarized Letters of Intent are similar for applicants invited to interview vs. not invited and applicants ranked vs. not ranked.

**Methods:** This is a retrospective, observational study of all Letters of Intent submitted in 2015, 2016, and 2017 to this institution's PGY-1 program. A list of 569 Letters of Intent was generated from the Pharmacy Online Residency Centralized Application Service (PhORCAS). Exclusion criteria includes candidates withdrawing from the Match and Letters of Intent submitted to the incorrect residency program at this institution. All other Letters of Intent were included in the analyses. The primary outcome was to compare the similarity index between applicants invited to interview vs. not invited and ranked vs. not ranked. Similarity index was calculated by iThenticate plagiarism detection software using a  $\geq 10$  percent match-threshold. To identify plagiarism occurrence within individual pharmacy schools, an intra-school analysis was performed utilizing T-Lab software's inter-document similarity function. Additionally, Letters of Intent were analyzed by SafeAssign to assess similarity scores between Letters of Intent.

**Results:** There were 555 Letters of Intent included in the analysis. Distribution of Letters of Intent were as follows: 183 invited, 372 not invited, 141 ranked, and 42 not ranked. There was no statistical difference in the percentage of plagiarized Letters of Intent in the invited vs. not invited groups and ranked vs. not ranked groups [4.3 percent vs. 4.0 percent (chi-square 0.036;  $p = 0.850$ ) and 4.2 percent vs. 4.7 percent, (chi-square 0.020;  $p = 1.000$ )]. The range of similarity indexes was 0 percent to 54 percent. Mean and median similarity scores were similar amongst

groups ( $p = > 0.05$ ). Three almost-identical Letters of Intent were identified in the secondary analysis corresponding to applicants applying from one individual pharmacy school over a three-year period. All three of these applicants were invited to interview and ranked.

**Conclusion:** Letter of Intent plagiarism, although occurring, does not decrease the likelihood of interview invitations or rank list placement.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Evaluative Study**

**Poster Title:** Assessment of APPE Grading Schemes: Implications for Residency Placement

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**Purpose:** The AACP Task Force to Determine Best Practices for APPE Assessment identified that student assessment in APPE settings is not standardized, that programs utilize a variety of methods including pass/fail and letter grades to assess student performance, and that these assessments are important because they are high-stakes and may affect student progression. The Task Force decided to conduct a survey to determine APPE grading schemes across ACPE accredited pharmacy programs, their perceived attributes (pros and cons), and correlation between the type of grading scheme to residency placement data.

**Methods:** A 12-question survey was developed and disseminated to schools/colleges of pharmacy through the Experiential Education Section (EES) discussion board on AACP Connect in October 2018. Non-responders were contacted via email and phone with at least three attempts made to reach each non-responding program. Information provided by the American Society of Health Systems Pharmacists (ASHP) regarding PGY1 and PGY2 residency match rates for 2016-2018 was correlated to survey responses. De-identified data was analyzed using descriptive statistics, logistic regression models, and the FREQ procedure. Perceptions of grading scheme attributes, pros and cons, were analyzed via thematic analysis. The study was determined by IRB as non-human research and classified as exempt.

**Results:** Responses were received from 122/140 (87%) pharmacy programs. Forty-nine percent of respondents represented public institutions, sixty percent indicated they use letter grades compared to forty percent who use a pass/fail grading scheme or "other". The use of either grading method did not differ statistically when comparing public to private institutions, with

roughly thirty percent of each using a pass/fail scheme. Programs employing pass/fail grading were more likely to have students matched to PGY1 residencies (p-value < 0.001) than programs using a letter grading. There was no correlation between APPE grading and PGY2 placement during the same time period. Desirable attributes of pass/fail schemes included easier for preceptors, minimization of grade inflation, less subjectivity, and a focus on learning. Desirable attributes for letter grades included a better ability to differentiate students, a motivator for students, preferred by preceptors, residents, and students, aligns with University or consortium policy, and they improve student GPAs.

**Conclusion:** This data represents APPE grading schemes across the country and supports that Pass/Fail grading does not hinder residency placements. There are many contributing factors to residency placement in addition to grading scheme that were not analyzed in this study. The data may be used by pharmacy and residency programs to determine optimal assessment and candidate considerations.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** A shared longitudinal introductory pharmacy practice experience focused on transitions of care.

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**Purpose:** Introductory pharmacy practice experiences (IPPEs) were first introduced by the Accreditation Council for Pharmacy Education in 1997. IPPEs afford students the opportunity to apply information from the classroom to real-world patients early in the curriculum. A new longitudinal IPPE course focused on transitions of care (TOC) was developed for students in the third professional year (P3). Students are expected to be immersed in practice and serve as a patient centered caregiver in one of four settings (community, ambulatory care, health system or long-term care). A total of twenty experiential hours are completed with an approved pharmacy preceptor.

**Methods:** The opportunity provided by this new course allowed faculty preceptors at the same practice site to work together and creatively design an experience to make a broadened set of TOC activities available to IPPE students. Additionally, given the increased workload for preceptors, this design carried an added benefit of allowing faculty preceptors to share the workload of these students while still meeting the ability outcomes of the course. A large community teaching hospital, served as the healthcare setting for this co-precepted experience. A purposeful rotating schedule was developed by four practicing faculty members for their students. At the beginning of the 2018-2019 academic year, each faculty member was assigned two P3 students as part of the IPPE course for a total of eight students. Once students were assigned, faculty members met with the IPPE course coordinator to develop a list of the most valuable activities for a student's development in TOC. After this meeting, the group created a schedule of TOC activities for the entire academic year which assigned students to specific



dates and preceptors, dividing the workload equally. The group identified five topics/activities deemed necessary for creating a quality longitudinal experience. Those topics included: a hospital specific orientation to TOC, medication list reconciliation, rounding/clinical interventions, discharge hospital education, and a TOC presentation/plan for improvement.

**Results:** All students completed a site visit with activities focused on the five identified topics, resulting in five site visits over the course of the year. Students were provided a detailed schedule at the beginning of the year, allowing for transparency of scheduled activities and early identification of rotation dates for planning purposes. Each visit was allotted four hours for a total of 20 hours per student, matching course requirements. All eight students completed the orientation together with all preceptors equally involved. Medication list reconciliation and rounding/clinical intervention visits were completed in student pairs, while discharge hospital education had four students at each visit, and patient education occurred in pairs. Students completed these activities with both their assigned preceptor as well as other site preceptors, exposing them to different inpatient medicine services and practice methods. All eight students completed the TOC presentation/plan for improvement on the same date with presentations being delivered in pairs to student colleagues and faculty. In total, 80 hours of site visits occurred over seven months on 12 dates to meet the 160 hour requirement for all eight students.

**Conclusion:** An IPPE course focusing on TOC affords a prime opportunity for pharmacist preceptors to collaborate resulting in optimized student experiences and decreased workload. A purposeful rotating schedule and experience shared by faculty members had P3 students engaged in many aspects of TOC while interacting with several faculty members and student colleagues. Overall, this longitudinal experience was well-received by both students and preceptors and faculty members are planning to utilize this model in future years.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Successfully rebranding a pharmacy residency program at an academic medical center

**Primary Author:** Linda Thomas, **Organization:** Strong Memorial Hospital - University of Rochester Medical Center; **Email:** linda\_thomas@urmc.rochester.edu

**Additional Author(s):**

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**Purpose:** The University of Rochester Medical Center is a six-hospital health system that includes Strong Memorial Hospital (SMH - flagship hospital) and Highland Hospital (HH), encompassing three Post Graduate Year One (PGY1) programs. Starting with the 2014-2015 residency interview cycle, a decrease in the number of prospective candidates applying to the PGY1 general program at SMH was observed. Candidate numbers declined each subsequent year, with the applicant pool during the 2016-2017 residency cycle resulting in only 6 applicants per residency position. Methods implemented to rebrand and market the residency programs to increase the visibility of programs is described here.

**Methods:** A few different strategies were implemented to overhaul the advertising of the residency programs. The SMH PGY1 program was reverted back to a traditional model, with the transition of a new program director in July 2017, with residents completing 1 month blocks in different specialty areas. Previous to this, the program was mainly focused on an internal medicine based model. In addition, increased efforts were made to attend residency showcases and career fairs to meet and discuss the programs with interested candidates. Extensive efforts to update and redesign the information on residency websites and ASHP showcase materials were executed with the collaboration of the institution's Marketing and Branding department. This included collapsing the old residency website pages and merging different standardized templates from the university to create one that is more viewer friendly, adding professionally taken photos and bios of preceptors and residents, and adding links to social media platforms. Handouts for prospective residents were reformatted to include more professionally designed folders with information about each program. Additionally, the panels and backdrop used to highlight the programs at the ASHP Midyear Residency Showcase booth was restyled and

enlarged to increase the physical presence at the meeting itself and to highlight the distinguishability of the site and the programs it has to offer.

**Results:** From participation at residency showcases and career fairs, it was surprising to know candidates had not heard of the medical center, even within a 3 hour drive from the hospital. The 2017-2018 residency interview cycle tripled to 18 applicants per position for the SMH PGY1 general program, followed by 35 applicants per position for the 2018-2019 cycle. Candidate recruitment numbers across other programs post implementation of rebranding and recruitment efforts are still pending review.

**Conclusion:** Efforts to increase the visibility and recognition of the pharmacy residency programs at the University of Rochester Medical Center has yielded in a higher applicant pool for the SMH PGY1 Pharmacy Residency. Ongoing efforts include continuing to build social media platforms such as Twitter, updating website content, and brainstorming innovative ideas to target more residency seeking candidates at the ASHP Midyear Residency Showcase through the incorporation of technology such as iPads to disseminate residency information.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Descriptive Report

**Poster Title:** Employing core entrustable professional activities (EPAs) to measure post-graduate year one (PGY1) pharmacy resident progression

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**Purpose:** The American Association of Colleges of Pharmacy (AACP) identified Core Entrustable Professional Activities (EPAs) for New Pharmacy Graduates to assist in the transition from students to practicing pharmacists. AACP defines EPAs as “specific tasks or responsibilities that trainees are entrusted to perform without direct supervision once they have attained sufficient competence.” The Unity Health post-graduate year one (PGY1) pharmacy residency program goals include developing clinical pharmacists equipped to provide high quality patient care; therefore, evaluating core EPAs in PGY1 pharmacy residents will assist the residents in self-assessing their growth as well as provide program data related to resident progression.

**Methods:** A 78-question survey was compiled from AACP’s Core EPAs for New Pharmacy Graduates. Each question represents the main activity and various supporting tasks listed in the following domains: patient care provider, interprofessional team member, population health promoter, information master, practice manager, and self-developer. Each PGY1 resident at this institution (3) was required to rate their self-perceived ability on each question when compared to the average new pharmacy graduate on a scale from 1 to 5 with 1 being very bad and 5 being very good. Residents were required to complete the survey via PharmAcademic upon beginning the residency, at the midpoint, and again at the end. Data was analyzed using the related-samples Friedman’s two way ANOVA by Ranks and post-hoc tests.

**Results:** From the beginning of residency, to the midpoint, to the end of residency, residents’ average score in the patient care provider domain increased from 3.2 to 4.6 to 4.9, in the population health promoter domain from 2.4 to 3.8 to 4.6, in the information master domain from 2.8 to 4.6 to 4.8, and in the practice manager domain from 2.7 to 4.0 to 4.7. Overall the

average score for all three residents in all domains increased from 2.9 to 4.3 to 4.8. These results indicate residents began residency the least confident in the population health promoter domain which also showed the greatest increase over the course of the residency year in self-perceived ability. Residents began the year the most confident in the patient care provider domain. Self-perceived ability increased in a statistically significant fashion across all domains and overall.

**Conclusion:** Implementation of resident self-assessment using AACP Core EPAs for New Pharmacy Graduates showed a statistically significant increase in self-perceived abilities in all domains for this residency program.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Evaluative Study**

**Poster Title:** Impact of Heroin and Opioid Prevention Education (HOPE) Committee on opioid prescribing and the provision of naloxone nasal spray

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**Purpose:** Opioid deaths continue to increase in the United States with an average of 116 Americans dying every day from opioid overdose. In 2016 there were 42,249 reported overdose deaths from prescription or illicit opioids, exceeding the number of motor vehicle crashes. The same year The National Survey on Drug Use and Health (NSDUH) reported that 1.8 million people in the United States suffered from prescription opioid use disorder and 626,000 people had a heroin use disorder. In addition, the estimated cost of opioid abuse being \$504 billion in 2015.

**Methods:** An integrated, multidisciplinary opioid oversight team consisting of physicians, pharmacists, behavior health specialists, and physical therapists was created to oversee opioid prescribing patterns and initiate appropriate de-escalation management. Clinical pharmacists were utilized to provide education to patients on opioid education and overdose prevention and provide access to naloxone nasal spray to reverse a lethal opioid overdose. Clinic providers were counselled on opioid taper and instructed to down taper opioid therapy when possible. Patients were identified via electronic health record (EHR) data and a list was formed of qualifying patients with their next appointment date. The list was monitored daily. Upon arrival to the clinic, patients were counseled and offered naloxone nasal spray by the clinical pharmacist. The medication was ordered by the pharmacist via a collaborative practice agreement and dispensed through the pharmacy. The target population for this initiative was patients with total MMEs of  $\geq 90$  and/or patients on chronic opioid therapy and  $\geq 65$  years of age. The definition of "chronic" opioid therapy is patients on opioids for  $\geq 3$  months. Higher doses of opioids are associated with higher risk of overdose and death. In addition, higher doses have not been shown to reduce pain long term. Dosages at or above 50 MME per day double the risk of overdose

**Results:** By initiating a local HOPE Committee the facility was able to mitigate the number of opioid prescriptions as well as the total number of morphine milligram equivalents (MMEs) for individual patients. Since implementation in May 2017, 60% of patients were able to undergo dose de-escalations resulting in a 70% decrease in total MMEs. From September 2018 to present the facility has had a 41% decrease in patients with MMEs  $\geq 50$  and  $\leq 90$  and a 100% decrease in patients with MMEs  $\geq 90$ , decreasing from 21 patients to no patients (with the exception of 2 cancer patients). In addition to decreasing total MMEs, patients were educated by clinical pharmacists on the importance of opioid abuse awareness and received naloxone nasal spray to treat opioid overdose. A total of 199 prescriptions for naloxone nasal spray have been dispensed to patients.

**Conclusion:** Using a multidisciplinary team to address opioid use may be beneficial in developing a plan of action to de-escalate individual patient's opioid therapy in a safe manner resulting in a significant reduction in total MMEs. The team can also be beneficial in targeting select patients to dispense naloxone nasal spray for opioid overdose harm reduction and provide opioid overdose education.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Evaluation of resources for a pharmacy summer internship program

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**Purpose:** The Johns Hopkins Pharmacy Summer Internship Program requires interns to complete projects that contribute to pharmacy practice within the institution. The objectives of this study are to 1) evaluate the types of projects that have been completed by summer interns; and 2) evaluate the time and money associated with the summer internship program within a health-system to determine cost savings compared to pharmacist full-time equivalents to complete projects.

**Methods:** A retrospective review of projects completed by pharmacy students in a summer internship program was performed. Projects completed between 2014 through 2018 were evaluated and classified into five categories: education, operations/process improvement, patient safety, clinical, or quality assurance. Each author independently reviewed each project and classified it into one of these categories. For projects where all three reviewers listed a different category, consensus to one category was determined through group discussion. To calculate the resource savings from interns completing these projects, the total internship time for each intern was estimated at 40 hours/week for 9 weeks. An average class-size of 23 was used based on previous class sizes ranging from 21 to 26 interns. The intern's schedule was divided into non-productive time, which was time the interns participated in educational/professional development sessions, and productive time, defined as time dedicated to projects benefitting the pharmacy department. Approximately 30% of their time was considered non-productive. Therefore, it was estimated that the remaining 70%, approximately 6 weeks, was productive. The average hourly salary for a summer intern of \$15 was used in the cost calculations. The sum of productive time for all interns was extrapolated to estimate the full-time equivalent (FTE) pharmacist positions needed to complete the work



accomplished by the interns. The estimated salary for pharmacist FTE was also compared to the total salary for the interns.

**Results:** Over the five years evaluated, there were 115 projects completed. The majority of the projects (58%) were categorized as operations or process improvement; 14% clinical, 13% education, 10% quality assurance, and 5% patient safety. In evaluating the cost and time resources associated with the summer internship, each intern cost approximately \$5,400 for the 9-week program. This results in a total salary expenditure of \$124,200 total for 23 interns per year. We estimated that 252 hours (70% of internship) was productive time dedicated to working on projects. Based on these numbers, we calculated that interns working on projects saved the institution 2.8 pharmacist FTEs. According to the Bureau of Labor Statistics, the median hourly wage for a pharmacist in Maryland is \$58.25. The same 252 hours of productive intern time would have cost our institution \$14,679 for a pharmacist to complete the work. Based on the interns' productive work and contributions, our institution was able to save \$9,279 per intern, \$213,417 per year and 3 FTEs.

**Conclusion:** A pharmacy summer internship program is beneficial to a health-system in multiple ways. Pharmacy interns are able to spend dedicated time on projects that contribute to pharmacy operations, process improvement, patient safety, staff education, clinical services, and quality assurance. Many of these projects would otherwise be completed by a pharmacist. Having a summer intern in lieu of a pharmacist work on projects saves the department in pharmacist cost and FTEs. The impact of these projects are challenging to measure, but the work completed by interns has facilitated improvements within the department and provision of drug distribution and patient care services.

## National Pharmacy Preceptors Conference Poster Abstracts

### **Poster Type: Descriptive Report**

**Poster Title:** Using a co-funded faculty for development and continuous management of student experiential education at a distant community health system

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**Purpose:** Asante (Health System) served as an experiential site for 1-2 pharmacy students per year, with limited and varied structure for these experiences. Pacific University School of Pharmacy (School) was developing programming for its first graduating class of 2009. The School partnered with the Health System to develop new student introductory (IPPE) and advanced (APPE) experiential required and elective options. Together they created a co-funded faculty position to facilitate the implementation of new programming. The intention was to build on-site support for experiential training while integrating practice insight into academia.

**Methods:** A pharmacist was hired jointly by the School and Health System in a co-funded agreement. Half of the pharmacist's wages and benefits were funded by each entity. The on-site responsibilities of the co-faculty member were jointly determined to include: development of new IPPE and APPE; onboarding pharmacy students; new and ongoing pharmacist preceptor development; serving as a preceptor and supervisor to students; serving as a mentor to other preceptors; facilitation of student activities including Journal Club, Case Conference and Topic Review; sustaining an active clinical practice. The co-faculty also had service, teaching, and scholarship expectations, accounting for 50% of their total responsibilities. The Health System serves southern Oregon and northern California with three hospitals, the largest being Asante Rogue Regional Medical Center (ARRMC), a 378-bed regional referral and trauma center located in Medford, Oregon. The Health System also has multiple primary and specialty care clinics, and two outpatient pharmacies. ARRMC is 286 miles (4.5 hours' drive) from the School. Medford's population is ~80,000 citizens, and its metro area is ~220,000.

**Results:** The co-faculty position began in 2007 with IPPE/APPE offered at two sites in the Health System service area; its initial focus was developing student experiences. Under the direction

and support of the co-faculty, by 2019 the student program expanded to offer 50-60 high quality training experiences per year at all three hospitals, two outpatient pharmacies, four primary care clinics, and an outpatient infusion service. Student precepting has become a job expectation for all pharmacists and currently 98.5% (64/65) of eligible pharmacists have board of pharmacy preceptor licenses. The Health System also developed eleven affiliation agreements with other pharmacy programs because of the active pharmacy student training. The co-faculty currently manages the complete program, engendering intraprofessional collaborative learning within the multi-school cohort. The co-faculty catalyzed a strong relationship between the School and Health System, bridging the 300-mile gap. Programmatic discussions greatly benefitted from the co-faculty's insight, as did collegial projects and committees. Financially, the shared resources maximized efficiencies while exponentially improving quality and quantity of training opportunities for pharmacists and students. The program resulted in expanded services (e.g., administering vaccines to inpatients and Meds to Beds), conducting research projects, and contributing to newsletters, as well as an increase in successful hires.

**Conclusion:** This co-faculty agreement is in its twelfth year and the Health System consistently averages a high volume and variety of IPPE/APPE each academic year. The co-faculty position has facilitated significant growth of a student program in a non-academic health system. Because of the positive changes experienced from the co-faculty position health systems should reach out to academic pharmacy programs to develop co-faculty positions at their sites.

## National Pharmacy Preceptors Conference Poster Abstracts

### Poster Type: Evaluative Study

**Poster Title:** Immunogenicity and safety assessment of a proposed biosimilar MSB11455 versus the currently licensed pegfilgrastim: a randomized, double-blind trial

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**Purpose:** MSB11455 is a proposed biosimilar to the currently licensed pegfilgrastim (Neulasta®). This double-blind, parallel group, non-inferiority study (NCT03251339) compared the immunogenicity, safety and tolerability of MSB11455 and the currently licensed pegfilgrastim.

**Methods:** Healthy men and women aged 18 to 55 years were randomized to one of two treatments, MSB11455 or Neulasta®, stratified by screening anti-polyethylene glycol (PEG) antibody status and treatment site. Subjects received a single subcutaneous injection of either MSB11455 or Neulasta® (both 6 mg/0.6 mL) on day 1 of each of two study periods. Periods were separated by 28 to 35 days. For measurement of antidrug antibodies (ADA) and neutralizing antibodies status, immunogenicity samples were taken before each dose on day 1 and on day 13 of each period, on day 28 of Period 2, and  $84 \pm 3$  days after the Period 1 dose (end-of-study). If subjects were ADA-positive at this time, they were assessed every 5 weeks until two consecutive sample results had returned to baseline value. The primary analysis of the primary endpoint consisted of estimating the difference in treatment-induced ADA-confirmed positive rates up to the end-of-study, with the corresponding exact 1-sided adjusted 95% confidence interval (CI), between MSB11455 and Neulasta® in the intent-to-treat (ITT) population. The predefined non-inferiority margin for the upper limit of the exact 1-sided adjusted 95% CI for the treatment difference in confirmed treatment-induced ADA positive rate (UL 95% CI) was 10%. Sensitivity analyses were performed using the per-protocol (PP) population. Treatment-emergent adverse events, serious adverse events, and adverse events of special interest occurring throughout the study were analyzed.

**Results:** 336 subjects (mean age 27 years) were randomized and received treatment. 56.8% were men and 43.2% were women. Baseline demographic characteristics were comparable between the two treatment groups. Treatment-induced ADA-confirmed positive rates were 8.9% (95% CI: 5.1, 14.3) for MSB11455 and 9.5% (95% CI: 5.5, 15.0) for Neulasta® in the ITT population (difference: – 0.6%). Non-inferiority of MSB11455 over Neulasta® was demonstrated for confirmed treatment-induced ADA positive status in the ITT population: the UL 95% CI was 6.25% (below the predefined non-inferiority margin of 10%). These findings were confirmed in the PP population (UL 95% CI: 6.12%). Treatment-induced ADA positivity over time was comparable between treatments, with the highest ADA incidence observed on day 13 of Period 1 for both treatment groups (8.4% of MSB11455 [14/167] and 7.7% of Neulasta® [13/168] recipients). There were no relevant treatment-related differences between median ADA titers over time. Most ADA after both treatments were directed against the methoxy-PEG portion of pegfilgrastim. No filgrastim-specific neutralizing antibodies were detected in either treatment group. Safety and tolerability were comparable between the treatment groups.

**Conclusion:** MSB11455 and Neulasta®, each administered in healthy subjects as two single doses 28 to 35 days apart, had similar immunogenicity, with MSB11455 being noninferior to the reference product in this respect. This finding was observed in the primary ITT population analyses and confirmed in PP population analyses. Safety and tolerability were also comparable between the treatments. This study supports the biosimilarity of MSB11455 to the licensed pegfilgrastim in terms of immunogenicity, safety and tolerability.

## National Pharmacy Preceptors Conference Poster Abstracts

**Poster Type: Descriptive Report**

**Poster Title:** Expansion into a multiple site PGY1 pharmacy residency program.

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Michelle Murray

**Purpose:** To explain the steps necessary for expansion of our PGY1 residency program from a system program with four PGY1 residents to a multi-site program with six PGY1 residents based at six different hospitals within our system. Due to a CMS audit in 2017, the reimbursement for our PGY1 program was in jeopardy based on all residents being based out of a system administration cost-center. Over the course of 12 months, we worked closely with ASHP, hospital leadership, and pharmacy leadership to successfully continue our pharmacy residency program and maximize CMS reimbursement.

**Methods:** Our system has had a PGY1 residency program since 2001. The program has gradually expanded from 1 resident to 4 residents. Based on a CMS audit in 2017, the decision was made to change to a “multi-site” program with six PGY1 residents based at six different hospitals.

The first step was to understand the changes necessary while also maximizing CMS reimbursement. The next step was gaining approval from C-suite leaders as well as individual hospital and pharmacy leaders. Each hospital was responsible for approval of 1 PGY1 position within their own cost center, in addition to 8 hours per pay period to support a site coordinator as required by ASHP’s Accreditation Policy for Multiple-Site Residency. Each site had to identify a staff member to fulfill the site residency program coordinator role and this person became a member of our system residency advisory committee (RAC). The next step was creating a memorandum of understanding amongst the sites to clearly delineate job roles and tasks to ensure common language and actions. The next step included changing our recruitment material and website to reflect our program changes. Recruitment and interview changes was next to tackle. We completely reformatted our interview process to allow each site autonomy in recruitment and interviews in addition to maintaining the system structure and feel. Each site conducted 8-12 interviews for 1 PGY1 spot.

**Results:** Our pharmacy residency went from a system-wide program with 4 residents to a multiple site program with 6 residents, based at 6 individual hospitals over the course of 12 months. Each site received approval for 1 new position, interviewed 8-12 candidates each, and ranked candidates individually. All residents will complete staffing, general medicine, critical care and emergency medicine at their “home site” as core learning experiences. Each resident will have the opportunity to spend a maximum of 12 weeks completing elective learning experiences away from their home site. Positive results of this expansion include adding a significant number of new preceptors to our program, allowing each site accountability to an individual resident, and allowing each resident the individual attention from their home site. Negative results of this expansion could be less resident to resident relationship building within their cohort, traveling between sites for meetings and other training taking more time away from learning, less options for electives at smaller suburban sites.

**Conclusion:** The pharmacy residency over-haul resulted in six PGY1 programs at six individual hospitals within the health system. The program has 1 program director, 1 program coordinator and 6 site coordinators. Positive results of this change are multiple new leadership positions in the site coordinators, addition of a significant number of new residency preceptors and expansion of our program to six residents. Negative results are primarily based on logistics around distance between sites and less resident to resident interaction. We plan to provide lots of opportunities for feedback from the residents and preceptors to make changes as necessary.