2022 PSW ANNUAL MEETING

Navigating the Changing Tides of Healthcare

Thursday-Saturday, August 25-27, 2022
Kalahari Resort & Convention Center, Wisconsin Dells

Poster Presentation Abstracts

Evaluating the Impact of an Implementation Package on Clinical Pharmacists' Perceptions of Readiness to Implement a New Coordinated Care Transitions Service for Veterans with Chronic Obstructive Pulmonary Disease

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Background: Chronic Obstructive Pulmonary Disease (COPD) is the third leading cause of death globally, and the U.S. Veteran population is especially vulnerable to the negative impacts of COPD on their health and quality of life. Even though evidence-based best practices exist to manage COPD, there is no care delivery model that consistently improves patient outcomes when scaled.

COPD CARE is a transitions of care service that integrates pharmacists as prescribers to collaborate within primary care teams to deliver COPD best practices to Veterans. To address challenges to scaling this program, the COPD CARE Academy (Academy) is a comprehensive, educational, implementation package to support Veterans Affairs (VA) sites implementing COPD CARE. Comprised of 5 hour-long weekly synchronous sessions, the Academy provides guided implementation, informatics tools, clinical training, and team-based support to guide implementation.

Objective: This quality improvement evaluation used the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) Framework to examine what effect the Academy had on clinician and site readiness to implement COPD CARE at thirteen VA medical facilities.

Methods: A mixed-methods approach was used to obtain feedback from Academy participants about perceptions of the Academy on implementation readiness. Thirteen VA sites participated in the Academy from 2020-2021. One week after the Academy, clinicians completed an online questionnaire which contained both fixed-choice and open-ended questions. Descriptive statistics were calculated for all quantitative survey items and thematic analysis was used to summarize the qualitative open-ended items through an inductive approach. To assess changes in self-reported capability, the non-parametric Wilcoxon signed-rank test was used for the ten Likert scale items. We subsequently used the RE-AIM framework to evaluate clinicians' readiness to implement COPD CARE.

Results: The reach of the intervention was reflected in the number and the representativeness of clinicians involved in the Academy and implementation of COPD CARE. Academy effectiveness was demonstrated with clinicians reporting significant increases in their capability to complete implementation efforts after participation in the Academy across all ten Likert scale items ($p<0.05$) and all clinicians believing Academy content covered critical aspects of implementing COPD CARE. All VA sites completed and signed a Community Working Group (CWG) agreement, which indicated a willingness of leadership to support the adoption of COPD CARE. A high degree of utilization of Academy resources and over 90% clinician attendance at all five Academy weekly synchronous virtual discuss demonstrated a strong implementation fidelity.

Maintenance of the Academy tools and resources was supported with 92% of clinicians reporting long-term utilization of Academy resources and 75% of clinicians participating in the monthly CWG meetings.

Conclusions: The findings suggest the Academy was effective at providing the necessary resources and improving clinician's confidence contributing to their readiness to implement COPD CARE.

Conflict of Interest Statements: Ed Portillo has completed consulting work with AstraZeneca. Martha Maurer, Jordyn Kettner, Sonia Bhardwaj, Ziting Zhang, Maria Hill, Steven Do, Brittany Grasso, Sarah Will, Michelle Chui, and Shawn McFarland have no conflicts to disclose.

IRB Review of Abstract: This evaluation has been determined to be quality improvement.

Exploring the Impact of an Implementation Package on Clinical Pharmacist-Led Implementation of a New Service to Improve Care Transitions for Veterans with Chronic Obstructive Pulmonary Disease

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Background: Chronic Obstructive Pulmonary Disease (COPD) is a chronic lung disease characterized by airway inflammation and airflow obstruction. COPD is the third leading cause of death globally. U.S. Veteran population is disproportionally affected by this progressive and irreversible disease. Unfortunately, no care delivery model has been established to provide consistent patient outcome improvements when scaled. COPD Coordinated Access to Reduced Exacerbations (CARE) is a bundled transition of care service that integrates pharmacists as prescribers to collaborate within primary care teams to deliver COPD best practices to Veterans. To promote scalability of COPD CARE service, COPD CARE Academy was developed. The Academy is a comprehensive and educational implementation package that supports Veterans Affairs (VA) medical centers implementing COPD CARE. It is comprised of five one hour-long weekly synchronous sessions and provides guided steps, informatics tools, clinical training, and team-based discussion to medical centers to facilitate implementation.

Objective: This quality improvement evaluation examined the impact of COPE CARE Academy on VA medical centers' ability to successfully adapt and implement the COPD CARE service 8-12 months after the Academy.

Methods: A mixed-methods approach was used to obtain feedback from Academy participants about barriers, facilitators, and adaptations to implementing COPD CARE. Thirteen VA sites participated in the Academy from 2020-2021. Within twelve months after the Academy, clinicians from 12 VA sites participated in virtual structured interviews, which contained both fixed-choice and open-ended questions. Audio recordings of the interviews were transcribed for analysis. Descriptive statistics were calculated for all quantitative items and thematic analysis was used to summarize the qualitative open-ended items and identify emerging themes.

Results: Nine (82%) of the sites that intended to launch the service reported that they were successfully implementing COPD CARE at the time of the interview. Seventy-five percent of sites reported that they agreed, strongly agreed, or very strongly agreed that the Academy was critical for their site to implement COPD CARE. Several identified themes from the structured interviews shed light on factors that affected implementation, including facilitators (e.g., improving quality metrics, addressing gaps in patient care, providing incentives, and dedicating personnel) and barriers (e.g., integrating COPD CARE clinical note templates into workflow, competing priorities, and staffing shortages). Additionally, adaptations made by VA sites were indicative of successful implementation. These adaptations included modifying patient referral process, addressing different patient populations, involving respiratory therapists instead of primary care nurses.

Conclusions: The Academy was effective in supporting successful implementation of COPD CARE. Similar approaches can be considered for national scale-up of other pharmacy services.

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IRB Review of Abstract: This evaluation has been determined to be quality improvement.

Blood Pressure and Medication Outcomes for Uninsured Adults Given Automatic Blood Pressure Cuffs

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Background: Hypertension is a major risk factor for heart disease and stroke, which are leading causes of death in the United States. The 2017 ACC/AHA guidelines for hypertension recommend using home monitoring for titration of medications in combination with telehealth counseling or clinical intervention to help achieve the target blood pressure of <130/<80 mmHg. Despite this recommendation, little is known about the feasibility or utility of utilizing home blood pressure monitoring to assist in managing hypertension for uninsured or underinsured individuals as these individuals face significant, multifaceted barriers to chronic disease management. In March of 2021, Wisconsin's Free and Charitable Clinics Collaboration awarded a grant to Bread of Healing, a network of safety net clinics in Milwaukee, WI, for a Self-Monitoring Blood Pressure (SMBP) program. The program consists of a loaned blood pressure monitor coupled with education on how to properly collect blood pressure.

Objective: To determine the impact of home blood pressure monitoring for uninsured and underinsured individuals with elevated blood pressure readings at a safety net clinic in Milwaukee, WI. The results will help inform Bread of Healing on the utility of continuing the SMBP program.

Methods: A retrospective pre-post analysis was conducted using paper charts for patients seen at a Bread of Healing clinic and were enrolled in the Self-Monitoring Blood Pressure (SMBP) program from April 27, 2021, through May 15, 2022. Two investigators reviewed charts and recorded de-identified patient information into a secure, electronic data collection sheet. If there was no appreciable clinic blood pressure recorded after the monitor was loaned to the patient the median blood pressure was used instead of removing the patient. The primary outcome was the difference between the mean blood pressure (systolic and diastolic) of the previous three blood pressure readings taken at the clinic prior to receiving the monitor compared with the mean of the three blood pressure readings directly after the intervention. Secondary outcomes included the frequency of dose optimization, medication additions, and characterizing which drug classes were prescribed. A paired T-test was used to test for statistical significance of the primary outcome.

Results: Forty-four patients were identified as participants in the Self-Monitoring Blood Pressure Program (SMBP). The average change in systolic blood pressure showed a significant decrease of 4.89 mmHg (p=0.04), and diastolic blood pressure decreased 1.73 mmHg which was not significant. Fourteen patients (31.8%) had a new medication added and 15 (34.1%) had a medication dose optimized within the three clinic visits after receiving the cuff. The medication classes added the most often were thiazide diuretics (7 instances) and then Angiotensin II Receptor Blockers (4 instances). Post hoc analysis found that English speaking patients showed a 10.8 mmHg decrease in systolic blood pressure (p=0.0008) compared to non-English speaking patients who demonstrated a 1.5 mmHg decrease (p=0.65).

Conclusions: Implementation of the Self-Monitoring Blood Pressure program at Bread of Healing Clinic – Milwaukee demonstrated a statistically significant decrease in systolic blood pressure supporting the use of SMBP for uninsured and underinsured individuals at this clinic. Further questions remain about what patient factors may limit the effectiveness of SMBP in this patient population.

Medication Utilization Evaluation: Efficacy and Safety of Pharmacist to Dose Warfarin in Medical Intensive Care Unit Patients

Jason W. Toshner, 2023 PharmD Candidate, Sarah R. Peppard, PharmD, BCPS, BCCCP

Background: Warfarin management in critically ill patients is challenging1. To combat this, pharmacy-managed warfarin protocols have been established and have shown improved international normalized ratio (INR) control in surgical and non-surgical patients.[1] Many factors can affect a patient's INR such as antibiotic use, dietary changes, and medical comorbidities.[1–3] However, previous studies have not included critically ill patients in their analysis. The high acuity of patients in the intensive care unit (ICU), frequent diet changes, vasoactive agent use, etc., the evaluation of warfarin use and dosing by pharmacists warrants evaluation. The primary objective was to determine the efficacy of pharmacist to dose warfarin, and the secondary objective was to determine the safety of pharmacist to dose warfarin for patients admitted to a medical ICU.

Methods: In this single-center case series, participants were screened from September 2019 to August 2021 at Froedtert Hospital in Milwaukee, Wisconsin. Eligible participants had active warfarin consult for ≥ 72 hours and were admitted to an ICU. Daily INRs were collected to determine the percentage of days in therapeutic range. Other data values collected include the number of bleeding events defined by the Bleeding Academic Research Consortium[4], clotting events, blood products given, reversal agents, specific reversal agent used, daily nutrition status, doses of warfarin administered, days with a bridging agent (enoxaparin or heparin), and days with interacting medications. Efficacy is defined by therapeutic time in range and no evidence of a newly formed thrombosis. Safety is defined as the absence of any clinical bleeding events.

Results: A total of 86 patients underwent screening, with 19 patients included in the analysis. One patient was included twice because of two separate ICU admissions. A total of 134 patient days with an active pharmacy to dose warfarin consult were recorded, with 97 days (72.4%) of warfarin administration. Patients had an INR in therapeutic range 34 of the 134 days (25.4%), were subtherapeutic for 78 days (58.2%), and supratherapeutic for 22 days (16.4%). Of the 78 patient days with a subtherapeutic INR, patients received a bridging agent for 59 of the days (75.6%). Three patient days required intravenous vitamin K due to an INR > 5 (2.2%), three different patients received packed red blood cells (544.3 mL ± 219.8 mL), and no new thrombotic (0%) or bleeding events (0%) were recorded. Diet orders consisted of either an enteral or regular diet in 106 (79.1%) patient days. Patients received at least one medication that interacts with warfarin such as amiodarone, phenobarbital, antibiotics, or antifungal agents for 66 patient days (49.3%).

Conclusion: In this small study, pharmacist to dose warfarin had a high proportion of patient days not in therapeutic ranges. This could be due to the frequent changes to a patient's warfarin regimen, medications, diet, and/or administration of blood products or vitamin K. Additionally, there were no reported clinically defined bleeds that show pharmacist to dose warfarin in the ICU is reasonably safe.

References:

1. Daniels PR, Manning DM, Moriarty JP, et al. Improving inpatient warfarin therapy safety using a pharmacist-managed protocol. *BMJ Open Qual.* 2018;7(2):e000290. doi:10.1136/bmjoq-2017-000290
2. Abdel-Aziz MI, Ali MAS, Hassan AKM, Elfaham TH. Factors influencing warfarin response in hospitalized patients. *Saudi Pharm J.* 2015;23(6):642-649. doi:10.1016/j.jsps.2015.02.004
3. Dawson NL, Klipa D, O'Brien AK, Crook JE, Cucchi MW, Valentino AK. Oral anticoagulation in the hospital: analysis of patients at risk. *J Thromb Thrombolysis.* 2011;31(1):22-26. doi:10.1007/s11239-010-0473-5
4. Mehran R, Rao SV, Bhatt DL, et al. Standardized Bleeding Definitions for Cardiovascular Clinical Trials. *Circulation.* 2011;123(23):2736-2747. doi:10.1161/CIRCULATIONAHA.110.009449

Documentation of Vaccination Status at the Time of Transplant

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Background: The William S. Middleton Memorial Veterans' Hospital is a major site for solid organ transplantation where the immunization history of all adult pre-transplant patients is evaluated during the transplant listing process. Receiving immunizations prior to transplant is crucial as transplantation weakens the immune system, decreases the effectiveness of vaccines given post-transplant, and causes patients to become susceptible to preventable diseases. The implementation of a centralized vaccine database will allow providers to document in real-time the vaccine status of organ recipients at the time of transplant. Providers may then use the database as a quality improvement tool to assess what processes can be changed to increase pre-transplant vaccination rates. This study aims to develop and implement such a database that can be cross-referenced by transplant clinic staff to track immunization histories and determine areas of improvement to maximize immunizations prior to transplantation.

Methods: A database was developed to record patient information and vaccine history at the time a patient undergoes transplantation. Patient demographic information included name, sex, age at transplant, date of evaluation, date of transplant, and organ being transplanted. Routinely recommended adult vaccinations for immunocompromised patients were documented based on current guidelines from the Infectious Disease Society of America, Advisory Committee on Immunization Practices, and American Society of Transplantation. The recommended vaccinations included pneumococcal, Tdap, MMR, varicella, Shingrix, hepatitis A and B, HPV, influenza, and COVID-19 vaccines. Patients were categorized as being unvaccinated, partially vaccinated, fully vaccinated, immune per serology, or ineligible for each vaccine as assessed at the time of transplantation. The database can then be populated in real-time, assessing organ recipients' immunization status at the time of transplant for each of the listed vaccines. As the database grows, the data may be used for quality improvement processes.

Evaluation of Veterans Who Have Completed an Integrative Patient-Centered Whole Health Program

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Background: Integrative medicine and patient-centered care recognize patient empowerment, behavior change, and continuity of care as tools for addressing high healthcare costs and chronic disease burden within the United States. The 2017 Veterans Health Administration Policy Directive mandated coverage of complimentary and integrative health programs as part of Veterans Affairs (VA) standard medical benefits. Whole Health and Empower is a collaboration between VA integrative health care teams and Veterans to identify a Veteran's goals and purpose for improving their health and well-being. Personalized care strategies in a partnership model between Veterans and clinicians use conventional and complimentary therapeutic approaches to optimize care.[1]

Objectives: To assess the influence of a patient-centered care program on chronic disease management, health outcomes, and patient satisfaction for Veterans pursuing personal healthcare goals with support from integrative healthcare teams.

Methods: Retrospective chart reviews were performed on twenty-six Veterans who completed a minimum of one-year in the Whole Health/Empower program with the William S. Middleton Memorial Veterans Hospital. Both objective and subjective outcomes of interest were determined a priori. Data related to chronic diseases, emergency room visits, pain management, mental health, sleep, and patient satisfaction were collected then analyzed for significant differences from enrollment in the program (t) to one year following program enrollment (t+1).

Results: Preliminary findings suggest positive subjective data relating Whole Health/Empower with pain management and patient satisfaction as well as a decrease in emergency room visits. Current objective data lacks demonstration of significant influence on chronic disease management and number of pain medications.

Conclusions: Veterans enrolled in Whole Health/Empower receive some health benefit however variable. This study is limited by a small sample size and does not account for additional comorbidities or acute illnesses.

References:

1. Bokhour, B. G., Haun, J. N., Hyde, J., Charns, M., & Kligler, B. (2020). Transforming the Veterans Affairs to a Whole Health System of Care: Time for Action and Research. *Medical Care*. 58(4), 295–300. https://doi.org/10.1097/MLR.0000000000001316

The Impact of Mindfulness-Based Skills in the Applied Patient Care Curriculum on First Year Pharmacy Student Wellbeing

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Background: To evaluate the effects of curricular incorporation of a practical, scientifically-based application, the Levelhead-Ed program, on student resiliency, perceived stress, familiarity with mindfulness, and self-compassion.

Methods: All first- year pharmacy (P1) students enrolled in the Concordia University Wisconsin (CUW) School of Pharmacy (SOP) were provided access to a recommended weekly curriculum plan to learn emotional intelligence skills via the Levelhead-Ed® application as an optional aspect of Applied Patient Care (APC) I and APC II (n=47). Quantitative data was collected and assessed using validated scales via a pre- and post-survey for academic year 2021-2022 from August 16, 2021 through May 6, 2022. Levelhead-Ed employees were responsible for data collection through the application (frequency of use), collection and analysis of the validated scale surveys for significance, and to identify needs specific to our pharmacy student population in comparison to other programs that have utilized this teaching format. The validated scales utilized included the Perceived Stress Scale (PSS), Five Faceted Mindfulness Questionnaire (FFMQ), Self Compassion Survey (SCS), Warwick Edinburgh Mental Well-Being Scale (WEMWBS), and Brief Resiliency and Coping (BRC).

Results: Of the initial 47 students in the P1 cohort, 33 completed the pre- and post- survey (70%). A review of questions related to the Levelhead-Ed class experience identified that 80% of students' responses were higher or about the same as the composition classroom population from previous studies. The largest negative variances were attributed to only 35% of students agreed or strongly agreed that the instructor provided the right level of reinforcement of the topics, and 45% of students agreed or strongly agreed that the experience was useful and a good addition to coursework. Despite negative variances, 75% of students responded they would like to see more coursework integrate content like Levelhead-Ed into the curriculum. The only validated scale that demonstrated statistically significant improvement from the pre-post- survey was the WEMSBS scores which improved from 38.92 to 45.16 (p=0.004). The mean PSS scores remained the same pre- and post – survey at 27.46 and 27.57 (P=.5). Mean FFMQ, SSC, and BRS scores trended towards an improvement, but were not statistically significant at 44.86 and 47.53 (p=.072), 32.03 to 35.62 (p=.009), and 12.88 to 13.11 (p=.369) respectively.

Conclusion: The use of Levelhead-Ed application was successfully implemented into year one of the APC series and the overall experience was positive for students at CUW SOP compared to other programs at Levelhead-Ed partner institutions. Areas of potential improvement were identified related to reinforcement of topics and usefulness of the experience. Students reported interest in further integration of mindfulness into other coursework. Although only one validated scale to measure wellbeing reached statistical significance, results were overall positive. A larger sample size and/or different assessment methods may be helpful for future analysis of this curriculum. SOPs should continue to explore curricular implementation to benefit student wellbeing and mindfulness.

Determining Knowledge and Confidence Changes in First-Year Pharmacy Students with Legislative Day Session: A Retrospective Analysis

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Background: The purpose of this retrospective study was to evaluate the effectiveness of a student-led advocacy training event. Informational sessions and group activities were used to increase knowledge of current pharmacy legislation, as well as confidence when speaking with state legislators. The data collected will be used to tailor future school-based sessions that prepare students for in-person Pharmacy Society of Wisconsin (PSW) Legislative Day events.

Methods: Eligible participants were enrolled in the Medical College of Wisconsin School of Pharmacy and attended the student-led School of Pharmacy Legislative Day event on March 2, 2022. Included in this event were informational sessions about how a bill becomes a law, how to talk with your state legislator, and current legislation in pharmacy, including white bagging and pharmacist contraceptive prescribing. Active learning sessions were utilized, and students were able to participate in mock legislator visits about white bagging and small-group debates on pharmacist contraceptive prescribing legislation. Attendees completed questionnaires before and after the event to determine changes in knowledge and confidence. Quality improvement questions were assessed to inform further changes to subsequent events.

Results: Thirty-four first-year pharmacy students were included in the IRB-approved study. The survey consisted of 5 questions regarding self-assessed knowledge and confidence changes of various topics on a 5-point Likert scale (1=strongly disagree and 5=strongly agree). Student's knowledge scores on topics including how a bill becomes a law, white bagging, and pharmacist contraceptive prescribing legislation increased from an average of 2.24 (± 0.86) before the event to 4.10 (± 0.62) after the event. Confidence levels while participating in a small group debate and mock legislator visits was 1.95 (± 1.0) before and 3.88 (±0.83) after the event. The most helpful session (largest knowledge change) at the Legislative Day event was the session on new legislation for pharmacists prescribing contraceptives (2.13 before and 4.16 after). Per the quality improvement results from the questionnaire, the majority of participants (67%) said that the small group debate was the most helpful.

Conclusion: We observed that from these student-led sessions, there was an increase in knowledge of pharmacy bills, increased confidence during mock legislator visits, and students engaged in active learning sessions to practice their advocacy skills. Preparatory sessions similar in structure to this event would offer ample training for future in-person PSW Legislative Day events. This event can easily be tailored each year to address new issues or bills related to the pharmacy profession and can also create preparatory sessions for other events as well.