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Assessment of clinical and educational interventions that Advanced Pharmacy Practice Experience (APPE) students contributed to a family medicine residency program

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ABSTRACT

Background and purpose: The literature firmly establishes that clinical interventions made by pharmacy students on Advanced Pharmacy Practice Experience (APPE) rotations contribute significantly to cost-savings realized by the hosting practice sites. The Accreditation Council for Pharmacy Education (ACPE) specifies the experiential curricula include opportunities for students to learn about, from, and with other members of the healthcare team through interprofessional education activities.

Educational activity: This study assesses clinical and educational interventions contributed by APPE students at a family medicine residency program to determine the extent students were engaged in the interprofessional team and physicians' receptiveness to the recommendations.

Findings: Student interventions made from January 2009 to September 2012 were recorded in a Microsoft Excel Spreadsheet. Data was evaluated to determine 1) the most common types of clinical and educational interventions, 2) potential associated cost-savings/avoidance, and 3) provider receptiveness to recommendations based upon acceptance rates. A standardized scheme was utilized to assign a cost savings value according to Midwest America Division of Hospital Corporation of America (HCA) clinical savings standards. Pharmacy students contributed 2868 interventions in 3.5 years. A total of 59.2% of interventions were clinical and accounted for an estimated cost savings of \$55,892. The remaining 40.8% of interventions were pharmacy care activities, none were associated with a cost savings and three-fourths were considered educational. Intervention acceptance rate was over 80%, showing providers were very receptive to pharmacy students.

Summary: This study lends support that APPE students provide substantial clinical and educational contributions to healthcare providers and patients affiliated with family medicine residency programs. Additionally, healthcare providers and patients are very receptive to pharmacy students as members of the interprofessional team.

Background and purpose

Advanced Pharmacy Practice Experience (APPE) rotations provide critical opportunities for pharmacy students to learn crucial skills in patient and provider interactions as well as patient assessment and education. The Accreditation Council for Pharmacy Education (ACPE) Standard 11, Interprofessional Education (IPE), requires the curriculum to prepare all students to provide entry-

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level, patient-centered care in a variety of practice settings as a contributing member of an interprofessional team.¹ Key element 11.2, interprofessional team education, specifies for the experiential curricula to include opportunities for students to learn about, from, and with other members of the healthcare team and gain an understanding of the abilities, competencies, and scope of practice of team members through interprofessional education activities.¹

Experiential rotations benefit both the students and the hosting facilities. It has been well documented in the literature that advanced pharmacy practice experience (APPE) students contribute significantly to cost-savings realized by the respective hosting practice sites.^{2–9} Students gain hands-on experience and learn how to apply the knowledge they obtained in pharmacy school to real-life practice. Experiential rotations present the student opportunities to develop crucial skills that cannot necessarily be acquired in the classroom: communication with healthcare providers and patients, professionalism, accountability to care plans and patient outcomes, problem solving and critical thinking skills. Students also function as “pharmacist extenders” – pharmacist preceptors are helped to see more patients, potentially allowing them to find and resolve more drug-related problems which in turn improves patient outcomes.¹⁰ Furthermore, pharmacy students can help provide valuable education and aid in keeping practitioners up-to-date with current guidelines or best practices.

Even as crucial as APPE rotations are for a pharmacy student's development, there unfortunately exists a growing shortage of APPE practice sites available for students.^{11,12} Much of the problem stems from an enormous growth and expansion of pharmacy schools – from around 80 in 2000 to 132 in 2015: a 65% increase.^{13,14} When combined with the fact that ACPE Standards require APPEs to comprise a minimum of 25% of the pharmacy curriculum, availability of positions to accommodate the dramatic increase in pharmacy students has decreased substantially.¹⁵

APPE students completing a two-month general medicine rotation at the family medicine residency program were required to document all clinical and educational interventions contributed to the interprofessional team. The primary goals of the requirement were to assess how students are engaging in patient-centered care and interprofessional education and to create student awareness of the importance of documentation and the impact and value associated with their contributions. The number and type of documented interventions did not factor into the grade the student earned for the rotation. However, the information was assessed every two weeks by preceptors to provide students with guidance on how to more actively engage with the team and document in a more precise and concise manner. Additionally, sharing the contributed interventions with healthcare professionals emphasizes the value APPE students add to patient care and supports necessity for expansion of these programs. Factors that lead to the development of this study include recognition of the significant interventions pharmacy students contribute to patient care while on experiential rotations, the importance of interprofessional education to the ever changing healthcare system, and to comply with ACPE accreditation standards.

Interventions documented during the time frame of January 2009 to September 2012 were evaluated to determine 1) the most common types of clinical and educational interventions made by students across two practice sites; 2) potential cost-savings/avoidance associated with the interventions; and 3) provider receptiveness to student recommendations based upon acceptance rates. The study was declared exempt by the Investigational Review Board.

Educational activity and setting

The APPE students completed a required two-month hybrid rotation with faculty pharmacists at a family medicine residency program. The residency program encompasses two practice settings, an urban tertiary hospital recognized as a Level 1 Trauma Center and an ambulatory care clinic recognized as a National Committee for Quality Assurance (NCQA) Level 3 Patient-Centered Medical Home (PCMH). The program is comprised of approximately 20 faculty physicians, 36 primary care residents, 20 nurses, and two faculty pharmacists, clinical behavioral psychologists, a social worker, and numerous support staff. Approximately 16 APPE students rotate through the residency program each academic year and spend upwards of four weeks at each site.

Although the APPE students primarily interact with the medical providers, nursing staff, and pharmacists, opportunities intermittently arise for engagement with other interprofessional healthcare members including social work, clinical behavioral psychologists, and administrative support staff. For each intervention contributed to the family medicine residency program, the students were required to document the following information in a Microsoft Excel® spreadsheet: date of occurrence, practice location the intervention was made, provider name and rank to which the recommendation was made, a brief description of the intervention, accepted/pending/rejected status, and classification of the intervention.

Students utilized a schematic allocated by the Midwest America Division of Hospital Corporation of America (HCA) clinical savings standards to classify interventions, assign monetary values, and facilitate consistent and accurate documentation. Classifications for interventions included the following: 1) antibiotic stewardship (AB), 2) drug regimen modification (DRM), 3) parenteral to oral administration change (IVPO), 4) laboratory test avoided (LAB), 5) renal dose modification (RDM), or 6) pharmacy care activities (PCAs). The PCAs were further sub-classified as either educational or non-educational. The educational PCAs included information conveyed to a healthcare provider or patient relating to a drug, disease state, or of some other focus. The intervention associated with the greatest reportable savings is AB. The following percentages reflect how all other interventions with a monetary value compare to the savings associated with an AB intervention: DRM (60%), IVPO (29%), LAB (27%), and RDM (40%). All PCA interventions were associated with zero reportable savings.

The non-educational PCAs included performance of the following: 1) foot exams, 2) request of external medical records by completing a protected health information (PHI) consent, 3) medication reconciliation, 4) referral facilitation, 5) pharmacy/insurance call, and 6) convenience services. Convenience services entailed compilation of medication and medical supply needs for the physician to call in patient refills.

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