Value of Utilizing Student Pharmacists in a General Pediatric Outpatient Clinic

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Primary Intended Outcomes
1. For student pharmacists to perform clinical interventions in a general pediatric outpatient clinic.
2. For students to learn and have exposure to pediatric pharmacotherapy.

Relevant PPMI Recommendation
B 24. Every pharmacy department should:
   B 24c. Plan to allocate pharmacy student time to drug therapy management services.

Situation Analysis
The University of Alabama at Birmingham Huntsville Regional Medical Campus provides an outpatient pediatric medical clinic that serves about 50 patients per day. This clinic is comprised of four pediatricians, nurses, a social worker, medical residents and students, and pharmacy students. The pediatric division recently transitioned an inpatient pediatric clinical pharmacist to an outpatient clinical pharmacist to further enhance patient care, resulting in a need for additional help with patients’ medication regimens.

Eleven Advanced Pharmacy Practice Experience (APPE) students from Auburn University Harrison School of Pharmacy worked with physicians and medical residents for five weeks of their clerkship block. They utilized their pharmacotherapy knowledge to perform chart reviews, medication assessments, and counseling.

Each student was assigned to a pediatrician and assisted in seeing patients and documenting interventions that were made. The pharmacist alternated patient visits with each student to provide a model for students to follow during their own patient work ups. This allowed the pharmacist to observe the students and provide feedback early on, ensuring that the students had an optimal experience.

During the APPE rotation, students were exposed to patients with many different medications and disease states. They also enhanced their pharmacotherapy knowledge. With proper coaching and
modeling, students were able to build confidence and gain useful skills for their future career paths.

**Service Description**
Students had the opportunity to enhance their knowledge of pediatric pharmacotherapy through interactions with patients and the medical staff. Each student performed a chart review and medication assessment prior to meeting with patients. Through this work, they were able to perform a complete patient work-up and determine the need for medication interventions prior to seeing the patient.

During clinic, students interviewed the patients or caregivers regarding their medications and allergies and counseled when appropriate on disease states and medications. Two students created patient education handouts on various disease states that were distributed to caregivers during counseling.

The clinic’s pediatricians also asked students to create disease state monitoring information sheets that were specific for different disease states. Students also learned the clinic’s formulary, ensuring that they could better accommodate the Medicaid population that the clinic served.

During the analysis period, students documented 1,433 interventions, 869 chart reviews, obtained 281 medication histories, and counseled 115 patients and caregivers.

On average, students conducted medication assessments for 18 patients per week. Towards the end of the project, pediatricians were encouraged to evaluate the students and the structure of the program. These evaluations were all positive.

**Key Elements of Success**
1. Coaching the students through the first week on how to properly document interventions and providing feedback to help students improve.
2. Providing examples and other resources to allow students to provide effective care.

**Resource Utilization**
- **Personnel:** This project utilized 11 APPE students as well as the pediatric clinical pharmacist.
- **IT and other infrastructure:** The school has an outside subscription to an electronic database, Quantifi, which was utilized to document patient interventions in the clinic.
- **Indirect expense:** The subscription to the electronic database.
- **Return on Investment:** Interventions made by the 11 pharmacy students during a seven-month period resulted in a cost avoidance of $69,776.

**Recognized Intangible Benefits**
Pharmacy students are a great resource in a clinical setting. Their up-to-date knowledge of medications combined with a new perspective on patient care can enhance workflow and clinical practice. Exposing students to a unique population with whom they would not normally interact helped to instill self-confidence in the students’ decision-making skills. The experience also helped students
to see tangible progress in their ability to provide clinical care. In addition, the clerkship gave pharmacists the chance to coach and motivate students to further grow in their profession and attain new skills they may use in the future.

Outcomes Measured
1. Interventions: Students were coached and provided with models that show how to properly document interventions. The pharmacist provided feedback early on so that students were effective in their services. Upon inputting documentation, cost avoidance was measured on data provided by the documentation system.

Lessons Learned
1. Through pharmacist coaching and the provision of models, students were able to make numerous interventions and see in real-time how they can impact patient care.
2. Utilizing students in the clinic built confidence and provided exposure that students would not see in the classroom setting.

Other Considerations
Data regarding implementing pharmacy services in general pediatric clinics is lacking in the pharmacy literature. This program allowed students to see the initiation of a practice site in this setting.

Suggestions for Other Hospitals/Health Systems
1. Given the rapidly changing health care environment, it is more important than ever to show the value of including pharmacists and pharmacy students on outpatient care teams.
2. This type of program helps to reveal the many ways that pharmacists’ services can be used in preventive care to reduce health care costs.