

# COLLABORATION AMONG PHARMACY PRACTICE AND PHARMACEUTICAL SCIENCES

## OPTIMIZES PATIENT CARE



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### Introduction

- Within pharmacy education are opportunities for expanded collaborations between faculty in Pharmacy Practice (PP) and Pharmaceutical Sciences (PS) along with students and other health care providers (HCP). Taking advantage of collaborations enhances students' education and advances patient care.
- ACPE Standard 4 advocates exposing students to knowledge, skills, abilities, behaviors and attitudes necessary to demonstrated innovation and entrepreneurship.<sup>1</sup>
- Standard 4 also endorses collaboration whereby students interact with individuals from a broad range of disciplines.<sup>1</sup>

### Objective

- Describe collaborations between PP/PS faculty, students and other HCP with local health systems to conduct translational research with the goals of improving student education and patient care.

### Partner Project 1

#### Impact of Continuous Renal Replacement Therapy (CRRT) on Minimal Inhibitory Concentration of Beta-Lactam in Critically Ill Pediatric Patients

**TEAM:** PP/PS Faculty, Students, Hospital Pharmacist, Physicians

#### PURPOSE

- Determine percentage of time drug concentrations of cefepime, meropenem and piperacillin/tazobactam remain above the minimal inhibitory concentration (MIC) for *Pseudomonas spp.* in pediatric patients.

#### RESULTS

- A significant percent of patients either never attained levels above MIC or fell below MIC values in a single dosing interval for all antibiotics evaluated.
- Data from this project are being utilized by the team to develop alternate dosing regimens to increase time above MIC.

### Partner Project 2

#### Multiport Y-site Compatibility of Parenteral Nutrition Solution with Routinely Used Pediatric CVICU Medications

**TEAM:** PP/PS Faculty, Students, Hospital Pharmacist

#### PURPOSE

- Assess feasibility of simultaneous IV dosing medications with TPN to reduce required venous access and infection risk.



#### RESULTS

- Physically compatible: Combination of epinephrine, vasopressin, milrinone and calcium gluconate with furosemide, esmolol, dexmedetomidine in all combinations along with a lipid free TPN solution
- Not physically compatible: Amiodarone; must be dosed in a dedicated access line.

### Partner Project 3

#### Stability of an Extemporaneously Compounded Oral Suspension of Bosentan

**TEAM:** PP/PS Faculty, Students, Hospital Pharmacist

#### PURPOSE

- Determine stability of compounded bosentan from 62.5 mg commercial tablets for improved oral delivery in pediatric patients.

#### RESULTS

- A 6.25 mg/mL oral suspension of bosentan in FlavorPlus™ and Flavor-Sweet™ was shown to be physically and chemically stable when stored at room temperature or refrigerated for up to 31 days.
- This data has been incorporated for routine use in pediatric patients.



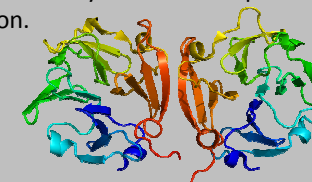
### Partner Project 4

#### Pilot Randomized Clinical Trial of Antimicrobial Treatment in Mechanically Ventilated Children with RSV Infection

**TEAM:** PP/PS Faculty, Physician

#### PURPOSE

- Measure intrapulmonary concentration and identify the optimal dose for antimicrobial therapy in reducing matrix metalloproteinase activity in tracheal aspirates of children with RSV infection.



#### RESULTS

- Antimicrobial therapy attenuated matrix metalloproteinase activity and generated a decreased viral load in patients with RSV.

### Conclusion

- Our institution has integrated research across the practice and science departments leading to results that are directly applied to patients at partner sites.
- Collaboration across pharmacy disciplines can provide unique opportunities for practitioners, researchers and students, leading to improved patient care.

### References

1. Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. Accreditation Council for Pharmacy Education website. <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>. Published February 2, 2015. Accessed June 27, 2018.