Collaboration at Midwestern University Chicago College of Pharmacy for the Big Three: Teaching, Service, Scholarship

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Abstract

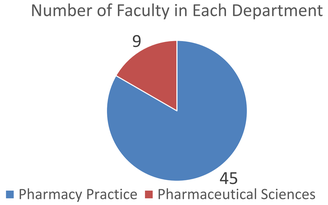
The College consists of two departments; pharmacy practice and pharmaceutical sciences. The departments are housed together in the same office suite, which has made collaborations both organic and purposeful. Successful collaborations in the areas of teaching, service, and scholarship are highlighted. In the area of teaching, collaborations between the two departments and the Pharmacology Department in integrating course sequences (Pharmacotherapeutics, Pharmacology, and Medicinal Chemistry) have helped streamline the course content and removed redundancies to ensure optimal student learning. Faculty members from both departments have formed interdisciplinary teams to pursue Scholarship of Teaching and Learning (e.g., a web-based game). In the area of service, pharmaceutical science faculty routinely observe the delivery of clinical pharmacy services by pharmacy practice faculty. This has offered additional opportunities for communication, research collaboration, and incorporation of clinical perspectives in didactic teaching in pharmaceutical science courses (i.e., case studies). In the area of scholarship, several interdepartmental research teams have been formed in the last decade, bringing together the strengths of clinical and basic science faculty. This has led to successful research endeavors, posters, publications, and the purchase of university-funded laboratory equipment. Intramural and extramural grant funding continues to support ongoing collaborations. With these collaborations, teams have been able to study and contribute to innovative translational research in the areas of infectious diseases and women's health. Successes and challenges of each will be reviewed and faculty perceptions will be highlighted. Future plans include expanding collaborations in teaching, service, and scholarship to include other colleges within Midwestern University.

Background

Chicago College of Pharmacy (CCP) Values Statement

The Chicago College of Pharmacy embraces the values of learning and discovery, excellence, professionalism, and collegiality in everything that we do; teaching, patient care, research and service.

Number of Faculty in Each Department



ACPE standards support interdepartmental activities:

- Standard 19.4: An interdepartmental peer review process could be interpreted as one part of how we ensure that non-practicing faculty are kept informed about contemporary practice.[1]
- Collegiality[2]

I: Scholarship and Research

Table1: Current Collaborations between pharm sci. and pharmacy practice departments at CCP

Project Title	Pharm Sci Role	Pharm Pract Role	Funding
Classifying and overcoming fetal and maternal vancomycin-induced kidney injury: a rat model to understand and A new formulation to circumvent	• Estimation of vancomycin content in rat kidneys using HPLC/LCMS assay • Formulation development	• PK modeling • Elucidation of a safe dosing scheme for pregnant females	MWU intramural multidisciplinary grant
Elucidation of an informed drug dosing scheme to minimize kidney injury	• HPLC assay development	• Study design and overall conduct/assessment	NIH R15
An Evaluation of Meropenem Pharmacokinetics in Critically Ill Patients on Extracorporeal Membrane Oxygenation (ECMO)	• HPLC assay development and analysis of samples	• Study design and overall conduct/assessment	CCP faculty intramural funding
Understanding the cellular toxicity of vancomycin in combination with commonly utilized antibiotics	• All cellular expertise	• Establishing a dedicated laboratory for the work. • Selecting clinically relevant drugs.	Recaptured laboratory funds
Development of a rapid and robust method to diagnose vancomycin-resistant Enterococci (VRE) infections and distinguish live versus dead pathogens.	• Developed PCR based assay for VRE and PA	• Provided clinical specimens for blind testing of the assays	MWU faculty research grant, CCOM_KAS student research awards
Visual and absorbance analyses of admixtures containing vancomycin and piperacillin-tazobactam at commonly used concentrations.	• Laboratory assessments	• Determining relevant concentrations/ statistical analysis/manuscript writing	Recaptured laboratory funds and start-up funds
IND enabling studies for centhaquin as a resuscitative agent for hypovolemic shock	• Overall study design/conduct/assessment	• Pharmacokinetic studies and statistical analyses	SBIR
Beta-lactamase Gene Types and the Inoculum Effect with Cefazolin among Methicillin-Susceptible Staphylococcus aureus isolates in Chicago Medical Centers: A multi-center prevalence study	• Extracted genomic DNA, performed PCR	• Oversaw collection of MSSA isolates from 5 Chicagoland sites. Statistical analysis of results.	MWU fellows research grant, CCP_KAS Student Research Award
Oral lorazepam for seizure prophylaxis in adult patients treated with high dose intravenous busulfan before hematopoietic stem cell transplantation	• Oversight of statistical analysis	• Oversight of student accessing clinical records	CCP_KAS Student Research Award
Evaluation of durations of pneumonia treatment and viable pathogen eradication	• Establish and validate EMA vPCR for clinically relevant PA in biologic matrices • Determine cefepime concentrations by HPLC and azithromycin by LC-MS/MS	• Dose mice and determine animal-level PK exposures to evaluate the impact of combination antibiotic exposures on PA infection.	CCP faculty intramural funding

MWU: Midwestern University
CCP: Chicago College of Pharmacy
CCOM: Chicago College of Osteopathic Medicine
KAS: Kenneth A. Suarez

II: Teaching

Teaching Innovation Seminars (Twice Yearly)

- Faculty share their experiences with innovations they have tried in the classroom.
- Encourages an exchange of ideas and foster future collaborations in SOTL.

Interdepartmental Peer Evaluation

Success: Faculty gain differing perspectives on didactic material/delivery

Challenge: Not available for every faculty member

Integration of Courses: Pharmacology, Medicinal Chemistry, and Therapeutics

Successes

- Global framework established by faculty
- Understanding the pedagogic needs of each discipline with a goal for a better learning experience
- Identified areas of redundancies
- Bringing together content experts from the two departments for planning/coordination
- Exchange of ideas for better content coordination and delivery
- Emergence of new pedagogical tools/strategies to optimize content delivery and student learning
- Potential development of innovative assessment tools
- Students will see the drug classes/topics from basic science to therapeutics application in close proximity

Challenges

- Labor intensive
- Required thorough planning and rearrangement of topics to ensure good alignment
- Required several meetings of course directors during planning and implementation stages
- Course content was shifted and some courses were split into smaller credit hour courses
- Student acclimation to this model of teaching and the pace of the material
- Courses are taught by three separate disciplines, therefore discrepancies in content and differences in policies exist

III: Service

Peer Shadowing

- Pharmaceutical Science faculty spend a half day with pharmacy practice faculty at their clinical site
- The word cloud on the right depicts common themes in faculty responses when asked to reflect on their peer shadowing experience

Summary and Future Directions

- Interdepartmental elective courses could be developed in drug development
- Assess course integration and optimize delivery for student learning
- Foster research relationships based on areas of interest
- Continue optional shadowing of activities for a full college perspective

References

1.https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf.Accessed 5/11/18
2.https://www.acpe-accredit.org/pdf/GuidanceforStandards2016FINAL.pdf Accessed 5/11/18

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