Pharmacy Clinical Research Microcredential – Program Curriculum

Purpose:

The Pharmacy Clinical Research Microcredential (PCRM) is designed to train pharmacists including pharmacy residents, and other healthcare professionals to develop an in-depth understanding of basic translational research knowledge and skills, including the interpretation, dissemination and application of biomedical literature to daily patient care.

We hope that graduates from this program will be well equipped to independently undertake their own research and also contribute to mentoring other learners.

Affirmation:

The PCRM offered by the Upstate Pharmacy Residency Programs was developed under the microcredential policy of the Board of Trustees of SUNY as well as the Upstate's policy on microcredentials. The PCRM is endorsed by the leadership of the Upstate Medical University.

The program is organized by the research committee of the Pharmacy Residency programs in collaboration with the Binghamton School of Pharmacy and Pharmaceutical Sciences and hosted by the Department of Pharmacy, Upstate University Hospital, Syracuse, New York.

Award of Certificate/Digital Badge

Graduates of the program would be awarded a certificate of completion and a digital credential offered as a digital budge by the SUNY Upstate Medical University and hosted by Credly®.

Knowledge and Aptitude Assessment:

1. All candidates will be required to take a preprogram and an end of program knowledge and aptitude test to help assess the impact of the training program.
2. Periodic aptitude assessments as directed by the respective faculty and the directors of the program may be conducted to help guide the achievement of the goals and objectives of the program.

Faculty

Name	Affiliation
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Christopher Miller, Pharm.D, BCPS	Associate Director, Clinical Pharmacy and Research Chair, Pharmacy Residency Research Committee millechr@upstate.edu
Susan Wojcik, PhD	Associate Professor, Emergency Medicine wojciks@upstate.edu
Robert Seabury, Pharm.D, BCPS, DABAT	Clinical Pharmacist Lead Research Preceptor, Upstate Pharmacy Residency Programs seaburyr@upstate.edu
Michelle Saya, RN, BSN, MSM	Chief Compliance Officer for Research sayam@upstate.edu
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Sarah Spinler, PharmD, BCPS-AQ Cardiology, FCCP, FASHP, FAHA, AACC	BUSOPPS Faculty Professor and Chair, Pharmacy Practice Binghamton College of Pharmacy
Leon Cosler, RPh, PhD	BUSOPPS Faculty Associate Professor and Chair, Health Outcomes and Administrative Sciences Binghamton College of Pharmacy
William Eggleston, PharmD, DABAT	BUSOPPS Faculty Clinical Assistant Professor, Pharmacy Practice Binghamton College of Pharmacy
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Derek Empey, BSc, MSHI	Pharmacist, Health Informatics Upstate University Hospital, empeyd@upstate.edu
Elizabeth Feldman, PharmD, BCPS, BCGP	Clinical Pharmacist, Upstate University Hospital feldmane@upstate.edu
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American Society of Health - System Pharmacists (ASHP) Goals and Objectives

The Goals and Objectives of the Pharmacy Clinical Research Microcredential (PCRM) (Adapted with modification from the American Society of Health-System Pharmacists Residency Program Goals and Objectives)

PGY1 Pharmacy Residency Program		
Goal	**Objective**	**Description**
R2.1		Demonstrate ability to manage formulary and medication-use processes, as applicable to the organization
	R2.1.2	Participate in a medication-use evaluation
R2.2		Demonstrate ability to evaluate and investigate practice, review data, and assimilate scientific evidence to improve patient care and/or the medication-use system
	R2.2.1	Identify changes needed to improve patient care and/or the medication use system
	R2.2.2	Develop a plan to improve patient care and/or the medication-use system
	R2.2.3	Implement changes to improve patient care and/or the medication-use system
	R2.2.5	Effectively develop and present, orally and in writing, a final project report
PGY2 Pharmacy Residency Program		
Goal	**Objective**	**Description**
R2.1		Demonstrate ability to manage formulary and medication-use processes for geriatric patients, as applicable to the organization
	R2.1.2	Participate in a medication-use evaluation
R2.2		Demonstrate ability to conduct a quality improvement or research project
	R2.2.1	Identify and/or demonstrate understanding of a specific project topic to improve care of patients or a topic for advancing the pharmacy profession or a clinical pharmacy specialty
	R2.2.2	Develop a plan or research protocol for a practice quality improvement or research project for the care of patients or a topic for advancing the pharmacy profession or a clinical pharmacy specialty
	R2.2.3	Collect and evaluate data for a practice quality improvement or research project for the care of patients or for a topic for advancing the pharmacy profession or a clinical pharmacy specialty
	R2.2.4	Implement a quality improvement or research project to improve care of patients or for a topic for advancing the pharmacy profession or a clinical pharmacy specialty
	R2.2.6	Effectively develop and present, orally and in writing, a final project or research report suitable for publication related to care for patients or for a topic related to advancing the pharmacy profession or a clinical pharmacy specialty at a local, regional, or national conference
E2.2		Conduct effective peer review of materials for publication or presentation
	E2.2.1	Contribute to the peer review of a pharmacotherapy professional's article submitted for publication or presentation

Note: The above objectives were adapted from American Society of Health-System Pharmacists Required Competency Areas, Goals, and Objectives for PGY1 and PGY2 pharmacy residency programs with minor modifications of the verbiage in the description of the PGY2 objectives for simpler application to all residency programs. **Abbreviations:** PGY1: Post-Graduate Year One, PGY2: Post-Graduate Year Two

Program Design:

The Pharmacy Clinical Research Microcredential (PCRM) is currently a 26 hours in-person/virtual live didactic lectures which are divided into 4 modules. An additional 5th module requires the participant to complete and submit a written manuscript of at least one research project for peer review and possible publication. These activities are completed over the 12 months of pharmacy residency training and should be recognized as part of the pharmacy residency research learning experience.

The didactic section of the program starts in July and ends in May of the pharmacy residency training academic year. Lecture schedule would be communicated to participants and or residency program directors at least 14 days prior to the start of the program. Most lectures are help in the late afternoon after 2:00 pm eastern time.

To receive a certificate of completion and a digital badge, a letter of attestation from Residency Program Director (RPD) or Associate Director of Clinical Pharmacy and Research or representative listing the names of the participant(s) must be sent to the director of PCRM and should include the following:

1) PCRM candidate has completed a research project and a manuscript has been submitted to a journal for peer review
2) PCRM candidate has attended at least 85% of the live in-person and or online sessions of the lectures.
3) PCRM candidate has completed all evaluations and tests offered during the program.

A sign-in sheet would be available to help document attendance. Candidates must sign their name to indicate attendance. Online only candidates or those not at Upstate campus, are required to contact Mrs. Theresa Kelly, Administrative Assistant or their RPD to make sure their attendance is documented.

Evaluations:

1) Participants are required to complete evaluations of each faculty at the end of the lecture presentation/lecture.
2) Pharmacy residents are required to complete PharmAcademic™ evaluations as required by residency program's advisory committee.

Readings:

Readings and assignments would be communicated to all candidates prior to the date of the lecture. Candidates are required to complete all readings/assignments as directed.

Contact Mrs. Theresa Kelly or any of the program coordinators with any questions or suggestions.

PCRM is divided into **5 Modules**:

Module 1: Research Basics
Module 2: Regulatory and ethical issues in research
Module 3: Understanding basic statistical tests and statistical software (SPSS)
Module 4: Presenting your research project
Module 5: Application of Knowledge and Completion of a Research Project

Table 2. Pharmacy Residency Clinical Research Microcredential (PCRM) Topics and Schedule.

Module	Topic	Objectives	Schedule	Hours
1	1. PCRM Overview **Presenter:** *William Darko, B.Pharm., Pharm.D*. BCCCP 2. How to Identify a Feasible Research Project **Presenter:** *Christopher Miller, Pharm.D, BCPS*	• Describe purpose and structure of the PCRM • Discuss goals and objectives of the PCRM • Discuss the process of identifying a feasible research project • List types of clinical research projects available to residents	July	2
1	Types of Scholarship **Presenter:** *Sarah Spinler, Pharm.D, BCPS - AQ Cardiology, FCCP, FASHP, FAHA, AACC*	• Identify different types of research and scholarship opportunities • Discuss the process for successful completion of each type of scholarship	July	1
1	Effective Literature Search **Presenter:** *Rebecca Kindon, MLS*	• Describe effective literature search skills • Compare and contrast search sources to identify appropriate literature	July	1
1	Literature Interpretation and Evaluation **Presenter:** *Robert Seabury, Pharm.D., BCPS, DABAT*	• Discuss the process of effective literature evaluation • Identify potential limitations embedded in published literature • Interpret and apply the results of a research publication effectively	July	1.5
1	Literature Interpretation and Evaluation **Presenter:** *Robert Seabury, Pharm.D., BCPS, DABAT*	• Discussed process of effective literature evaluation • Identify problems embedder in publish research papers • Discuss how to interpret and apply	July	1
1	Evaluating Meta – Analysis Presenter: *Robert Seabury, Pharm.D., BCPS, DABAT*	• Discuss the process of Meta- analysis evaluation • Identify potential limitations to meta- analysis • Interpret and apply metanalysis results to clinical practice	July	1
1	Study Design **Presenter:** *Leon Cosler, RPh, PhD*	• Identify key elements of different study designs • Compare and contrast strengths and weaknesses of various study designs	August	2
1	1. The Basics of Microsoft Excel in Research **Presenter:** *Derek Empey, BSc, MSHI* 2. Effective Data Collection and Management including REDCap	• Utilize Microsoft Excel for effective data collection • List and describe common mathematical formulas used in Microsoft Excel • Describe research data using Microsoft Excel	August	2

	Presenter: *Wesley Kufel, Pharm.D., BCPS, AAHIVP, BCIDP*	• Identify important variables and data to collect for a research project • Describe effective methods for data analysis to ensure validity and accuracy • Design an organized a data collection form to effectively collect data from the electronic medical record • Understand the use of Research Electronic Data Capture (REDCap) in data collection and analysis		
2	Regulatory and Ethical Issues in Research 1. Human Research and the IRB Process; Research and HIPPA Privacy Rules **Presenter:** *Michelle Saya, RN, BSN, MSM* 2. Research Misconduct **Presenter:** *Robert Quinn, DVM., DACLAM*	• Describe the IRB submission and review process for research projects • Discuss research misconduct and policies • Discuss HIPAA privacy rules and their impact on research	August	2.5
2	Grant Funding and Specific Aim Writing **Presenter:** *William Eggleston, PharmD, DABAT*	• Identify different funding sources for residency research projects • Review the process for writing proposals and specific aims for grants	August	1
3	Basic Biostatistics in Medical Research **Presenter:** *Robert Seabury, PharmD., BCPS, DABAT*	• Identify appropriate statistical tests for a research project • Calculate and describe statistical power • Interpret the validity of confidence intervals • Define and interpret type I and type II error • Calculate Number Needed to Treat and Number Needed to Harm	October	2
3	Abstract Writing, Poster Creation and Presentation Tips **Presenters:** *William Darko, B.Pharm, PharmD., BCCCP* *Elizabeth Feldman, PharmD, BCPS, BCGP* *Jenna Harris, PharmD, BCPS, BCACP*	• Design an effective scientific abstract and poster for a research project • Identify appropriate resources to create a research poster • Discuss effective poster presentations skills at scientific meetings	October	1
3	Biostatistical Software Instructions and Application in Data Analysis **Presenter**: *Susan Wojcik, PhD*	• Utilize statistical analysis software (i.e. SPSS) for data analysis • Discuss the importance of database development for statistical analysis • Identify appropriate statistical tests for hypothesis testing	October	2

		• Discuss interpretation of statistical test results using SPSS		
3	Logistic Regression and Multivariant analysis **Presenter:** *Susan Wojcik, PhD*	• Discuss the utility of this statistical test in research • Identify research outcomes that could be achieved with this statistical test	October	2
4	Journal Scope, Impact Factor, and Citations **Presenter**: *KarenBeth Bohan, Pharm.D., BCPS*	• Identify useful resources to identify appropriate target journals for publication • Discuss the pros and cons of standard metrics to measure research impact including impact factor, citation index, and H-index	January	1
4	Platform Presentation Tips **Presenter***: Elizabeth Feldman, PharmD, BCPS, BCGP*	• Design an effective platform presentation for a research project • Discuss effective platform presentation skills	March	1
4	Tips to Manuscript Writing **Presenter:** *Christopher Miller, PharmD., BCPS*	• Create an effective and well-written manuscript suitable for publication • Review required sections and content within a manuscript	April	1
4	Publication Process and Peer Review **Presenters:** *Wesley Kufel, Pharm.D., BCIDP, BCPS, AAHIVP* *William Eggleston, PharmD, DABAT*	• Describe the publication submission process and timeline of events • Discuss approaches to appropriately respond to peer review comments • Review essential resources to effectively perform a peer-review	May	2
	Total Lecture Hours			26
5	**Application of Knowledge and Completion of a Research Project** This section shall be supervised by the local RPD or representative.	1. Complete a least **ONE** research project as required by residency program 2. Present a research project at a local, state, regional, and or national professional conference prior to graduation 3. Complete a manuscript describing your research project by May 31st and submit a copy to a peer reviewed journal for review and possible publication by June 15th of the academic year.	August – May of the academic year	N/A

Abbreviations:

ASHP: American Society of Health-System Pharmacists

IRB: Institutional Review Board

HIPAA: Health Insurance Portability and Accountability Act