

# Integrating Pharmacy Learners into Your Simulation

Chelsea Phillips Renfro, PharmD, CHSE  
Liza Andrews, PharmD, BCCCP, BCPS, CHSE  
Kelly Lempicki, PharmD, BCPS  
Jennifer Beall, PharmD, BCPS, CHSE  
Carol Motycka, PharmD

SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021



# Disclosures

Drs. Chelsea Renfro, Liza Andrews, Kelly Lempicki, Jennifer Beall, and Carol Motycka have no relevant financial relationships to disclose.

# Learning Objectives

At the end of this presentation, participants will be able to:

- Understand the importance of simulation training for pharmacy education
- Discuss lessons learned from various interprofessional and pharmacy specific simulations
- Bring training methods back to their institution which are appropriate for their learners

# WELCOME



## Chelsea Renfro, PharmD, CHSE

Assistant Professor and Coordinator for Simulation-based Education  
University of Tennessee Health Science Center College of Pharmacy

Chair, Pharmacy Affinity Group  
Society for Simulation in Healthcare

# What does a pharmacist do?



# Core Entrustable Professional Activities for New Pharmacy Graduates

## Patient Care Provider Domain

- Collect information to identify a patient's medication-related problems and health-related needs.
- Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health-related needs.
- Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost effective.
- Implement a care plan in collaboration with the patient, caregivers, and other health professionals.
- Follow-up and monitor a care plan

# Core Entrustable Professional Activities for New Pharmacy Graduates

## Interprofessional Team Member Domain

- Collaborate as a member of an interprofessional team.

## Population Health Promoter Domain

- Identify patients at risk for prevalent diseases in a population.
- Minimize adverse drug events and medication errors.
- Maximize the appropriate use of medications in a population.
- Ensure that patients have been immunized against vaccine-preventable diseases.

# Core Entrustable Professional Activities for New Pharmacy Graduates

## Information Master Domain

- Educate patients and professional colleagues regarding the appropriate use of medications.
- Use evidence-based information to advance patient care.

## Practice Manager Domain

- Oversee the pharmacy operations for an assigned work shift.
- Fulfill a medication order.

## Self-Developer Domain

- Create a written plan for continuous professional development.



# CLINICAL SKILLS DEVELOPMENT

Developing Practice Acumen in Pharmacy Learners,  
Preparing for Advanced Pharmacy Practice Experiences  
(APPEs)

SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021

# WELCOME



## Liza Barbarello Andrews

PHARM.D, RPH, BCCCP, BCPS, CHSE

CLINICAL DIRECTOR, SIMULATION  
CLINICAL ASSOCIATE PROFESSOR  
ERNEST MARIO SCHOOL OF PHARMACY  
RUTGERS BIOMEDICAL AND HEALTH SCIENCES  
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY

CLINICAL PHARMACY SPECIALIST, CRITICAL CARE  
CHAIR, CRITICAL CARE PHARMACY COLLABORATIVE  
RWJBARNABAS HEALTH SYSTEM, NEW JERSEY

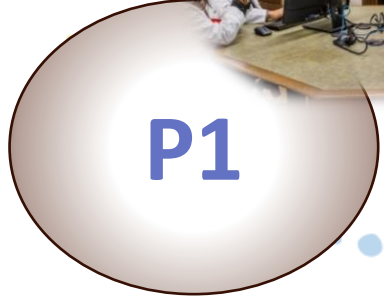
TEAM LEAD, CRITICAL CARE PHARMACIST TEAM  
RWJ UNIVERSITY HOSPITAL AT HAMILTON

SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021



Ernest Mario  
School of Pharmacy  
Rutgers, the State University of New Jersey



P1



P2



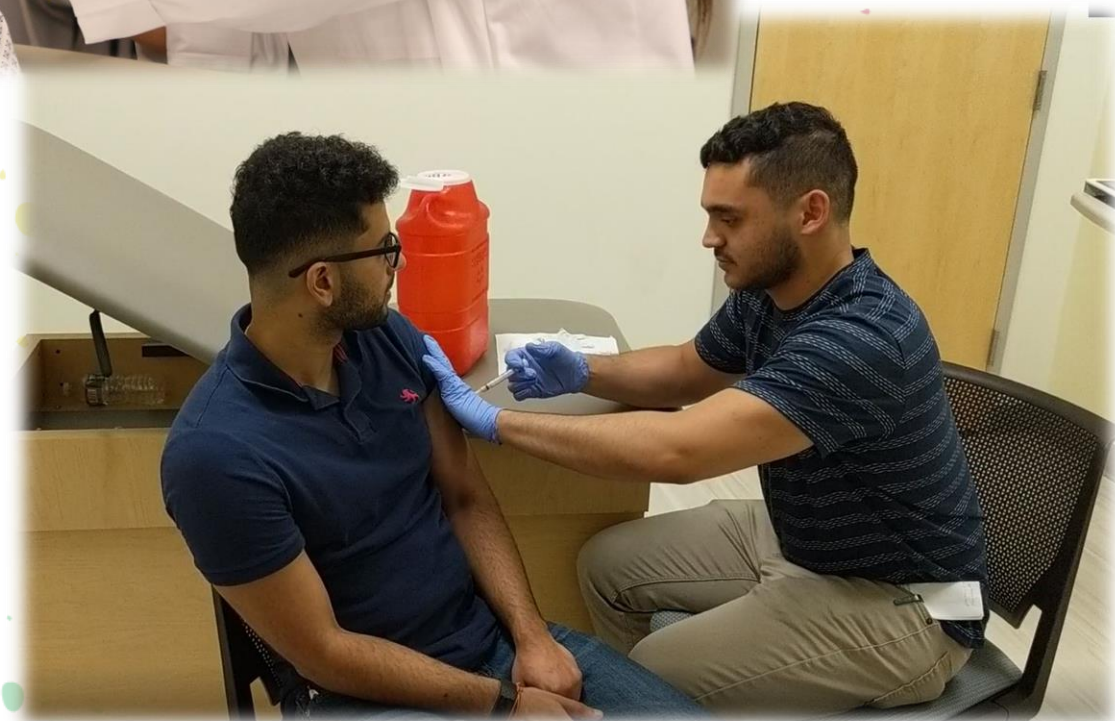
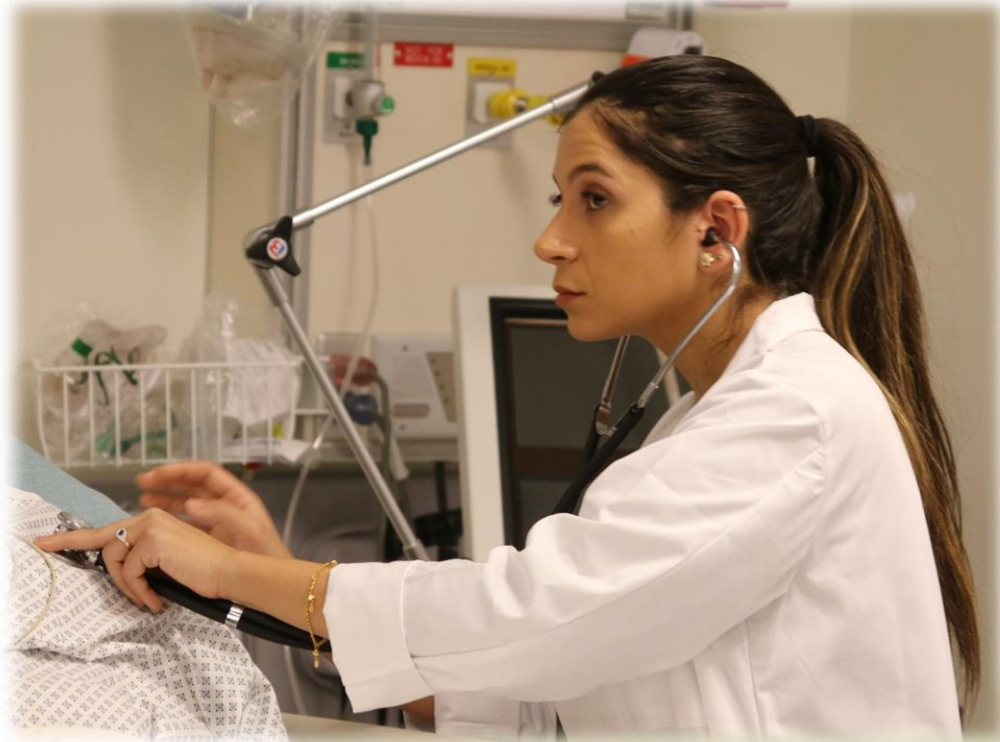
P3



P4

SIMULATION: BRINGING LEARNING TO LIFE

#IMSH2021



**Clinical Skills Development**  
**Ambulatory to Acute Care Settings**  
**Integrated Pharmacotherapy Skills Series**

SIMULATION: BRINGING LEARNING TO LIFE

# Infectious Disease Pharmacist Consultation iPASS, P2 Year



SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021

# Increasing Clinical Complexity and Acuity with the P3 Clinical Electives



Critical Care

SIMULATION:  
BRINGING LEARNING TO LIFE



Emergency Medicine

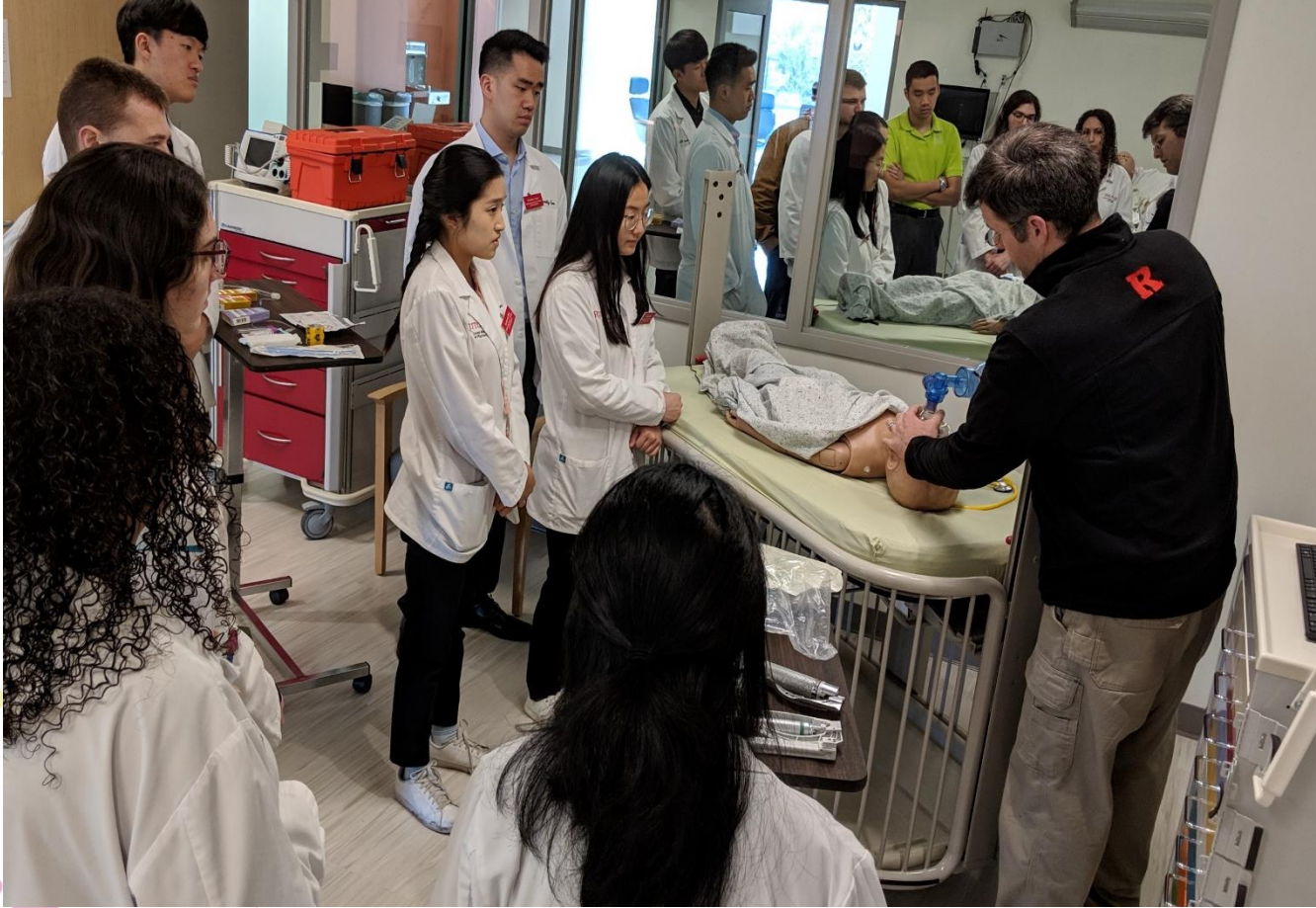
#IMSH2021

# Bridging Skills Across Years P2 Sterile Parenteral Preparation Skills in Critical Care



SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021



## Instructional Simulation



## Teaching While Doing

SIMULATION: BRINGING LEARNING TO LIFE

#IMSH2021



# N PhaRMD A D



IPE

# QUESTIONS?


Feel free to reach out with any  
questions:

**[ibarbarello@pharmacy.rutgers.edu](mailto:ibarbarello@pharmacy.rutgers.edu)**

#IMSH2021

SIMULATION:  
BRINGING LEARNING TO LIFE





# Incorporating 1<sup>st</sup> Year Pharmacy Students in Interprofessional Simulations

SP Encounter and Escape Room Simulation

**Kelly Lempicki, PharmD, BCPS**

Assistant Director, Clinical Skills and Simulation Center  
Associate Professor, Pharmacy Practice  
Midwestern University  
Downers Grove, IL

SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021

# Midwestern University Downers Grove Campus

- Chicago College of Osteopathic Medicine
- College of Pharmacy – Downers Grove campus
- Chicago College of Optometry
- College of Dental Medicine – Illinois
- College of Health Sciences
  - Physician Assistant Studies
  - Occupational Therapy
  - Clinical Psychology
  - Speech-Language Pathology
  - Physical Therapy
- College of Graduate Studies
  - Biomedical Sciences



MIDWESTERN UNIVERSITY

*Educating Tomorrow's Healthcare Team*

# Interprofessional Education Course

- Lectures (weeks 1-4)
  - Introduction to IPE
  - Introduction to one health
  - Roles and responsibilities panel
  - Interprofessional communication
- Breakout sessions (weeks 5-10)
  - Ethics for interprofessional practice
  - One health
  - SP encounter
  - Escape room simulation

## Interprofessional teams

- 1 DO student
- 1 Pharmacy student
- 3 other health profession students

# Standardized Patient Encounter

Karl/Karla  
Brandt

- Elderly patient
- In a SNF after a recent hospitalization
- Minimal improvement in mobility
- Struggling with recommendation for long-term care in a nursing facility

# Logistics

```
graph LR; A[Student Preparation] --> B[SP Encounter (~15 min)]; B --> C[Team Reflection];
```

Student  
Preparation

SP  
Encounter  
(~15 min)

Team  
Reflection

# Escape Room Simulation

- Identify the unique and complementary abilities of team members to optimize health and patient care
- Recognize one's limitations in skills, knowledge, and abilities as it relates to patient care
- Communicate information with other healthcare team members in a form that is understandable and respectful
- Describe the roles and practices of effective teams



# Structure

Classroom  
(15 min)

SIM room  
(15 min)

Team  
Reflection

# Puzzle Design



Case-based

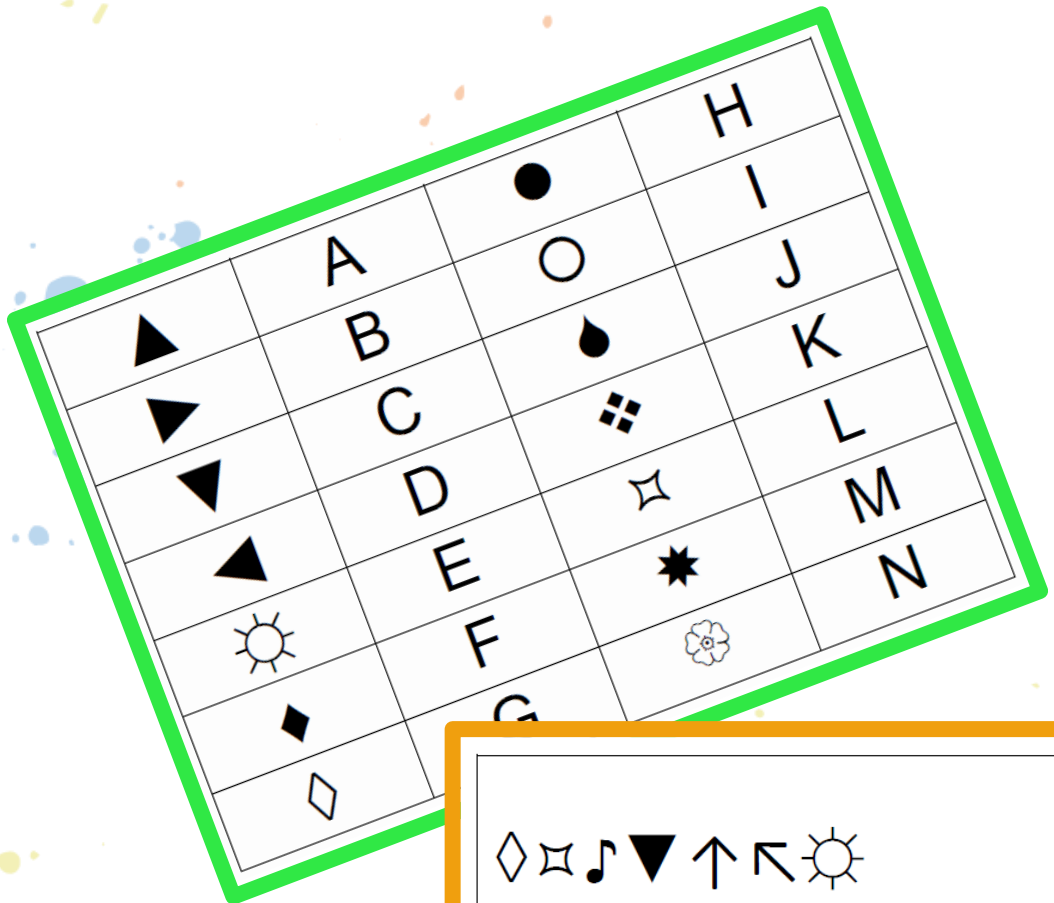
Appropriate  
for  
1<sup>st</sup> year  
students

Reinforce roles  
and  
responsibilities

Minimal  
set-up  
and  
clean-up

# Classroom Puzzles

- Primarily web-based
  - Accessed with QR code or link
- Introduction to patient case
- Lab identification and assessment



		Reference Range	Units
Sodium	141	135-145	mEq/L
Potassium	4.1	3.3-4.9	mEq/L
Chloride	103	97-110	mEq/L
Bicarb	28	22-30	mEq/L
BUN	10	8-25	mg/dL
SCr	0.7	0.6-1.1 female	mg/dL
Glucose	98	0.7-1.3 male	10 <sup>3</sup> /μL
WBC	5.9	65-109 (fasting)	g/dL
Hemoglobin	14.4	4-10	%
Hematocrit	43.6	12.1-15.1 female	10 <sup>3</sup> /μL
Platelets	310	13.8-17.2 male	seconds
aPTT		36.1-44.3 female	
		40.7-50.3 male	

◇ ☆ ♪ ▼ ↑ ↖ ☀		<input type="checkbox"/>	<input type="checkbox"/>	
↓ ☆ ▲ ↗ ☀ ☆ ☀ ↗ ↖		<input type="checkbox"/>	<input type="checkbox"/>	
▲ ↓ ↗ ↗		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Classroom Puzzles

- Primarily web-based
  - Accessed with QR code or link
- Introduction to patient case
- Lab identification and assessment
- Pill identification
- Consult crossword

# SIM Room Puzzles

- Puzzle assembly
  - Read backwards text with a mirror
- Documentation of vital signs
- Team introductions and identification of patient's goal



# QUESTIONS?

**Please email:** [klempi@midwestern.edu](mailto:klempi@midwestern.edu)

#IMSH2021

SIMULATION:  
BRINGING LEARNING TO LIFE



A stylized illustration on the left side of the slide depicts three medical professionals in yellow, blue, and green silhouettes. One professional in blue is holding a tablet. In the foreground, a patient is lying on an orange gurney with a purple blanket. The background is white with scattered colorful dots in yellow, green, and blue.

# Discussion of a telehealth ambulatory care simulation with third-year pharmacy and second-year medical students

Jenni Beall, PharmD, BCPS, CHSE  
Simulation Coordinator  
Professor of Pharmacy Practice  
Samford University McWhorter School of Pharmacy  
Birmingham, Alabama



# WELCOME



Jenni Beall is a Professor of Pharmacy Practice and the Simulation Coordinator for the Samford University McWhorter School of Pharmacy. Dr. Beall's research interests include simulation-based education, spiritual care, and Alzheimer's disease.

# Simulation Beginnings

- Samford University McWhorter School of Pharmacy
- Alabama College of Osteopathic Medicine



# Simulation Design

- 2012 article “An Interprofessional Pediatric Prescribing Workshop” by Taylor et al in the American Journal of Pharmaceutical Education.
- Students on their respective campuses, ~ 200 miles away
- Case development
- Google Hangouts

# Simulation Logistics

- Start in large classrooms connected through virtual meeting room technology
- Paper case provided to all
  - Pharmacy students received blank prescription
- Synchronous introductions and instructions
  - Pharmacy student instructions
  - Medical student instructions
- Go to assigned small group rooms

# Simulation Logistics

- Worked through case within their disciplines
- Connect with other discipline
- Medical students “call in” prescriptions to pharmacy students
- Case discussion/discipline discussion
- Return to large classroom for debrief

# Simulation Implementation

- 120 pharmacy and 160 medical students participated
- Groups of 2 pharmacy and 2-3 medical students
- Student perceptions survey

# Survey Results

- 147 out of 283 participants completed survey
- 8 questions on a 5-point Likert scale
- Text responses questions:
  - What about this event worked well?
  - What about this event could have gone better?
  - Describe one thing that you learned from this event.

# Survey results

- $\geq 95\%$  agreement with:
  - “This session utilized shared decision-making and teamwork to assess a patient’s issues”
  - “I had the opportunity to demonstrate effective communication skills in designing a plan of care to prepare the patient for hospital discharge”
  - “I had the opportunity to demonstrate knowledge of valid, legal, and complete prescription writing or transcribing”
  - “The patient case challenged me to think critically”



# Survey Results

- $\geq 95\%$  agreement with (continued):
  - “It was helpful to write out / receive a prescription order”
  - “I feel confident about my knowledge base related to the case”
  - “I feel that this session prepared me for real-world experiences”
- The one survey item that received less than 95% agreement was “We had enough time to work through the case”
  - 78% of respondents rated as Strongly Agree /Agree
  - 18% of respondents rated as Disagree

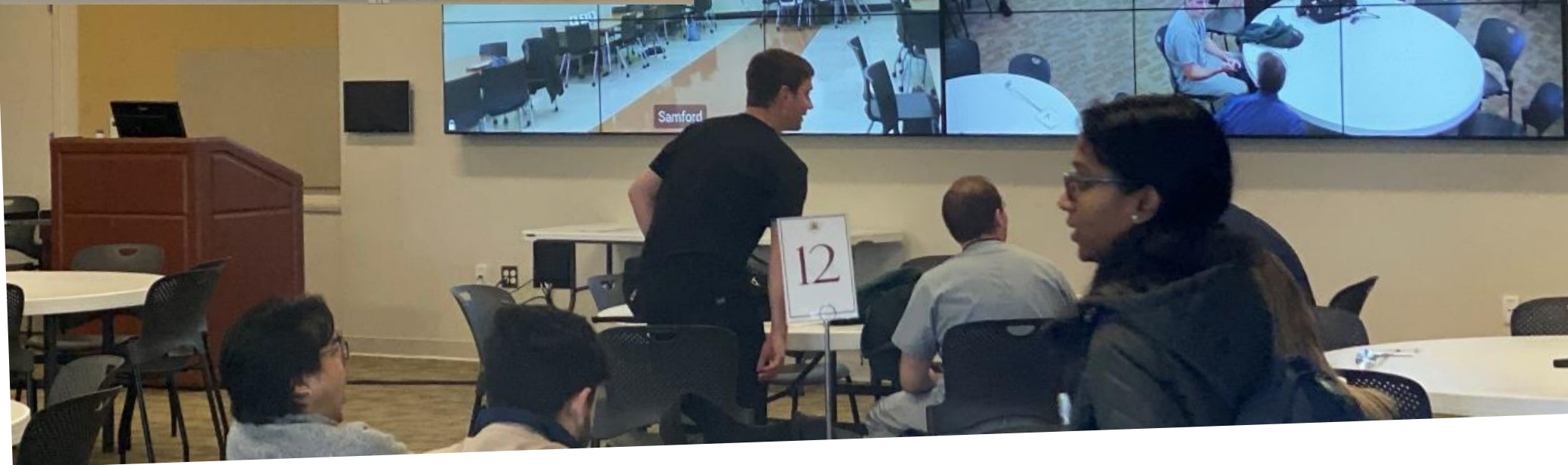
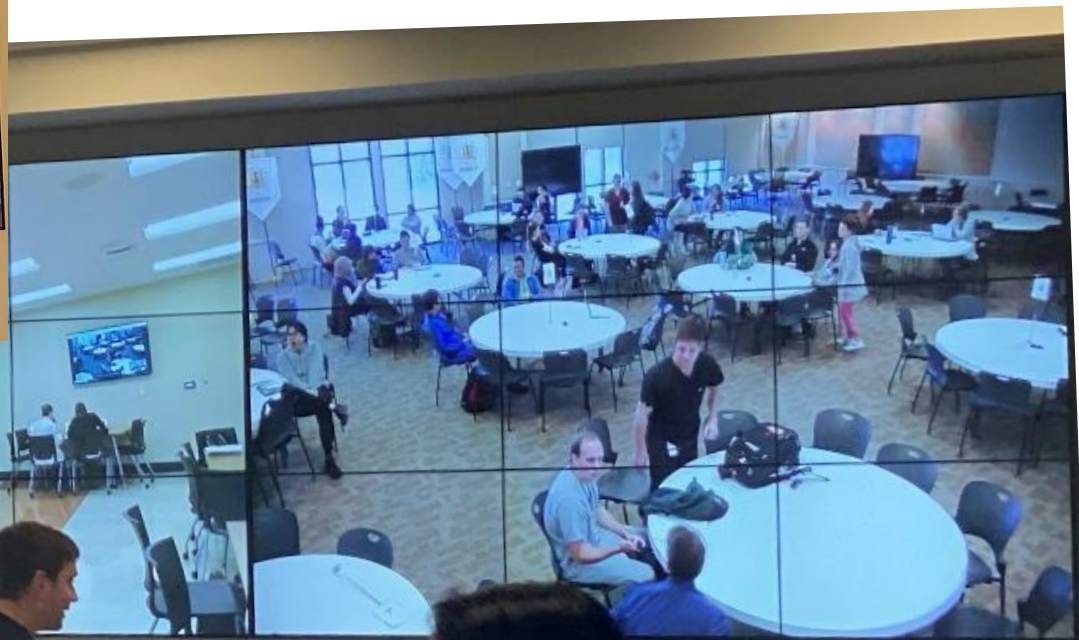
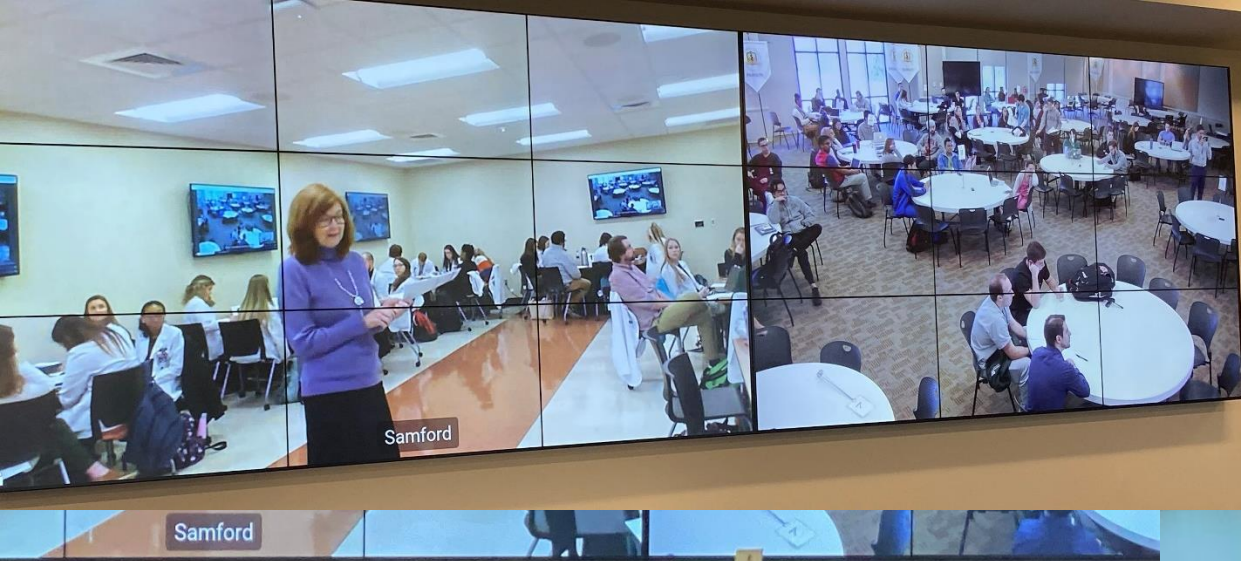
# Text Responses

- “What about this event worked well?”
  - Communication
  - Working with a “new” discipline
  - Good case discussion
  - Good group sizes/organization
- “What about this event could have gone better?”
  - Technology
  - More time to talk through cases
  - Unsure of where to start

“Describe one thing that you learned from this event.”

- How important teamwork is in practice
- How important the other profession is in patient care
- About the other’s profession
  - Difference between DO and MD
- Clinical content from the cases
- “The patient is always at the center of the discussion”





# QUESTIONS?

**Please email:** [jwbeall@samford.edu](mailto:jwbeall@samford.edu)

#IMSH2021

SIMULATION:  
BRINGING LEARNING TO LIFE



# SIMplifying the Process: Using TeamSTEPPS for Interprofessional Medication Management Training



# WELCOME



## Carol A. Motycka

Carol Motycka is the Campus Dean and a Clinical Associate Professor at the University of Florida College of Pharmacy in the Department of Pharmacotherapy and Translational Research. Dr. Motycka's educational interests include interprofessional education, teamwork training, and substance use disorders.



# Who we are...

- Core Members

- Carol Motycka, PharmD,
- Eric Egelund, PhD, PharmD
- Jane Gannon, DNP, CNM, CHSE
- Frank Genuardi, MD, MPH

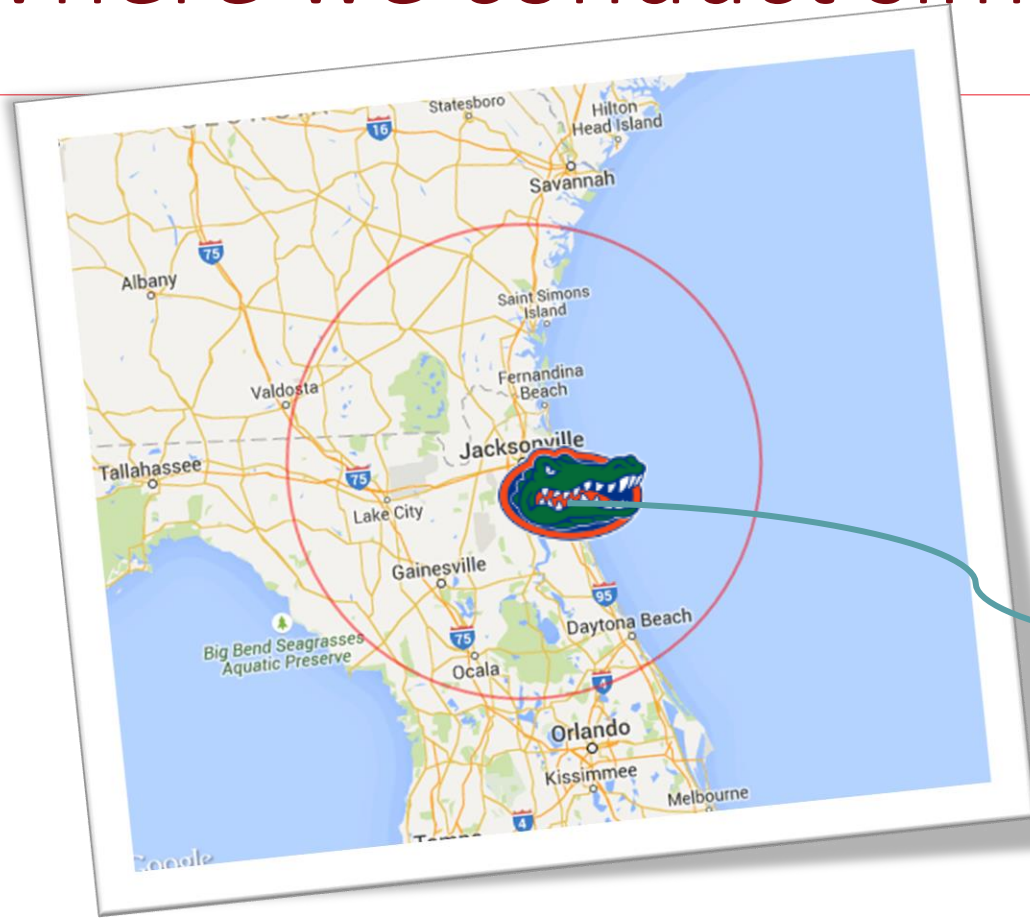
- Design & Implementation

- Amy Blue, PhD
- Karina Kolb, EdM
- Elliott Tardoff, MSC, PGCE

- Implementation

- Lisa Domenico, PhD
- Patrick Nobles, DNP
- Karen Whalen, PharmD, BCACP

# Where we conduct simulations...



CSESaR Center

# Background

Medical errors are the 3<sup>rd</sup> leading cause of death in the U.S.

Medication errors are the most common type of medical error

Communication gaps are a significant contributor to medication errors

Weak intra/interprofessional communication skills leads to...

Gaps in Communication

# Methodology

- Simulation Design
  - Integration of IPEC competencies
    - VE1, VE2, VE4, VE5
    - RR1, RR2, RR3, RR5, RR6, RR9
    - CC2, CC3, CC4, CC6
    - TT3, TT4, TT5, TT8, TT11

# Framework

- TeamSTEPPS®
  - “Team Strategies and Tools to Enhance Performance and Patient Safety”
  - Communication training program, co-authored by AHRQ and the DOD
  - Consists of structured communication tools and strategies, among them, “huddles”

# Intervention

- 3<sup>rd</sup> Year Medical Students, 3<sup>rd</sup> Year Pharmacy Students, and Accelerated BS Nursing Students
  - 45-50 minute TeamSTEPPS<sup>®</sup> presentation
  - 5 minutes team assignment, group building activity
  - Multi-station (4) medication management simulation exposure
    - 5 minute prebrief
    - 15 minute simulation
    - 10 minute debrief, then move to next station
  - Full Group Debrief

# The Scenarios

- Anaphylaxis



- Critical behaviors needed

**If not met:**

- Identify cross reaction

**Care delay**

- Stop the antibiotic

**Care delay**

- Select correct epinephrine dose

**Pt harm**

- Administer epinephrine correctly

**Pt harm**

# Measurement Plan

- **Attitudes toward teamwork (Level 1)**
  - TeamSTEPPS® Teamwork Attitudes Questionnaire on AHRQ website
  - 5 constructs, 6 items each
- **Video Analysis (Level 3)**
  - Huddle dynamics
    - Frequency
    - Duration in minutes and seconds
    - Tightness
- **Critical Behaviors (Level 3)**
  - Proportion achieved by each team across scenarios
  - Coded as care delays and/or patient harm, based on behaviors not met
- **Satisfaction (Level 1)**
  - 5-item survey tool



# Results

- T-TAQ

Matched pairs t-test \*p<.05

CONSTRUCT	PHARMACY	NURSING	MEDICINE
Team Structure	.001*	.000*	.010*
Leadership	.035*	.000*	.010*
Situation Monitoring	.003*	.000*	.007*
Mutual Support	.329	.263	.826
Communication	.000*	.016*	.002*

# Discussion

- Students gained more comfort in sharing ideas with increased collaboration
- Increased collaboration was associated with fewer simulated care delays and patient harm
- Integrating pharmacy students gave medical and nursing students a better understanding of how pharmacists are integrated into a medical management care team

# Lessons Learned

- Having an interprofessional team, including pharmacy faculty, design, implement and evaluate medical management simulations is just as important as having interprofessional students participate
- TeamSTEPPS provides an excellent framework for team simulations including pharmacy students
- Higher level medical management simulations may be incorporated when pharmacy students are included

# References (See full list with QR code below)

- AHRQ. (2017). Teamwork Attitudes Questionnaire (T-TAQ). Content last reviewed April 2017. Agency for Healthcare Research and Quality, Rockville, MD. Dingley C. et al. (2000). *Advances in Patient Safety: New Directions and Alternative Approaches (Vol. 3: Performance and Tools)*. Rockville, MD: Agency for Healthcare Research and Quality (US).
- Guo, M. et al. (2019). Medical safety huddles in rehabilitation: A novel patient safety strategy. *Arch Phys Med Rehabil*, 99(6), 1217-1219.
- <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>
- <https://www.unthsc.edu/interprofessional-education/wp-content/uploads/sites/33/Core-Competencies-for-Interprofessional-Collaborative-Practice.pdf>
- Makary, M. & Daniel, M. (2016). Medical error-the third leading cause of death in the US. *BMJ*, 353, i2139.
- Thompson, L., Krening, C., & Parrett D. (2018). Interdisciplinary team huddles for fetal heart rate tracing review. *Nurs Womens Health*, 22(3), 240-249.
- Toussant, J. & Berry, L. (2013). The promise of lean in health care. *Mayo Clinic Proceedings*, 88(1), 74-82.
- Wells, T. et al. (2-18). Description of pharmacist-led quality improvement huddles in the patient-centered medical home model. *J Am Pharm Assoc*, 58, 667-672.



# QUESTIONS?

**Carol Motycka:**  
[Motycka@cop.ufl.edu](mailto:Motycka@cop.ufl.edu)



#IMSH2021

SIMULATION:  
BRINGING LEARNING TO LIFE

# Integrating Pharmacy Learners into Your Simulation

Chelsea Phillips Renfro, PharmD, CHSE  
Liza Andrews, PharmD, BCCCP, BCPS, CHSE  
Kelly Lempicki, PharmD, BCPS  
Jennifer Beall, PharmD, BCPS, CHSE  
Carol Motycka, PharmD

## THANK YOU!

SIMULATION:  
BRINGING LEARNING TO LIFE

#IMSH2021

