

## **ABSTRACT: 2016 ELAM Institutional Action Project Symposium**

**Project Title:** Improving Patient Safety through Innovative Interprofessional Education and Practice Simulations

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**Collaborators:** Claire Peel, PT, PhD; David Farmer, PhD; Anthony Tissera, Eng; Amanda Robbins, MS, APRN; Pam McFadden, PACE

### **Background, Challenge or Opportunity:**

Preventable medical errors are the No. 3 killer in the U.S. - third only to heart disease and cancer-claiming the lives of 400,000 people each year. Each day 10,000 serious complications result from medical errors. Preventable errors are responsible for \$1 trillion of the annual U.S. health care expenditure. As the healthcare environment is changing, it is paramount that students entering healthcare professions acquire the necessary skills and attitudes to be effective at eliminating preventable harm and achieving the highest quality of care possible.

*Challenge:* At UNTHSC, patient safety (PS) is taught in silos in different programs. Students and faculty participate in interprofessional education and practice (IPE/P) activities but there are significant logistic barriers of coordinating education across several curriculums/years/clerkships and scheduling more than 2000 students from several disciplines for face to face IPE/P. Although simulations have higher translation power to clinical practice, some programs have been delivering simulation in relative isolation with some departments doing very little to no simulation.

*Opportunity:* UNTHSC has secured state funding to develop a Patient Safety Institute to be structured on three pillars: education, clinical care and research. This provides an opportunity to encourage collaboration, build efficiencies, enhance interprofessional education, expand simulation activities, and integrate PS curricula into our mission of creating solutions for a healthier community through education, care and discovery.

**Purpose/Objectives:** The purpose of this project is to develop both the content and infrastructure for delivering innovative simulations of IPE/P to increase patient safety.

### **Methods/Approach:**

- Investigate and test existing web platforms/software ( SimTabs, Clinispace , Serious Games Institute, Virtual Sim Center)
- In collaboration with IT department make decision to buy/develop in house/ partner with a company to modify an existing product.
- Survey collaborating hospitals and community partners, gather information on top patient safety concerns, identify priority topics to be used in simulation scenarios.
- Form an advisory group of faculty from all disciplines to serve as content experts, review/contribute to the development of simulations.
- Pilot simulation with faculty and student teams, use feedback to modify content & web platform
- Design and implement evaluation strategy.

### **Outcomes and Evaluation Strategy:**

Outcomes will include: i) innovative simulations scenarios that support a core curriculum of patient safety taught in IPE/P across all disciplines and ii) a web-based platform that engages students/clinicians in a multi-user simulation/" a serious game", fosters distance education and team based learning in PS. Initial components of the project start in AY 2016 with full implementation in AY 2017. Program evaluation will include student evaluation data, faculty evaluation of student performance, graduate and employer questionnaire data. The ultimate outcome will be an improvement in PS as measured by increased knowledge, competencies and attitudes of students towards PS; fewer critical errors/ near misses during clinical rotations by our students.

# Improving Patient Safety through Innovative Interprofessional Education and Practice Simulations

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Collaborators: Claire Peel, PT, PhD; David Farmer, PhD; Anthony Tissera, Eng; Amanda Robbins, MS, APRN, GCNS

## Background

Preventable medical errors are the No. 3 killer in the U.S. third only to heart disease and cancer, claiming the lives of 400,000 people each year. Each day 10,000 serious complications result from medical errors. Preventable errors are responsible for **\$1 trillion of the annual U.S. health care expenditure**. As the healthcare environment is changing, it is **paramount** that healthcare professions **students acquire the skills and attitudes** to be effective at eliminating preventable harm and achieving the highest quality of care possible.

## Challenge

**Patient safety is taught in silos.** Students and faculty participate in interprofessional education and practice (IPE/P) activities but there are significant **logistic barriers** of coordinating education across several curriculums, years/clerkships and scheduling more than 2000 students from several disciplines for face to face IPE/P. Although simulations have higher translation power to clinical practice, some programs have been delivering simulation in relative isolation, others doing very **little to no simulations**.

## Opportunity

UNTHSC has secured 4 millions in state funding to establish a **Patient Safety Institute (PSI)** structured on three pillars: education, clinical care and research. This provides an opportunity to foster collaborations, build efficiencies, enhance IPE/P, expand current simulation activities, and **develop and integrate a common curriculum for teaching patient safety** in the professional programs as we fulfill our mission of creating solutions for a healthier community.

## Purpose

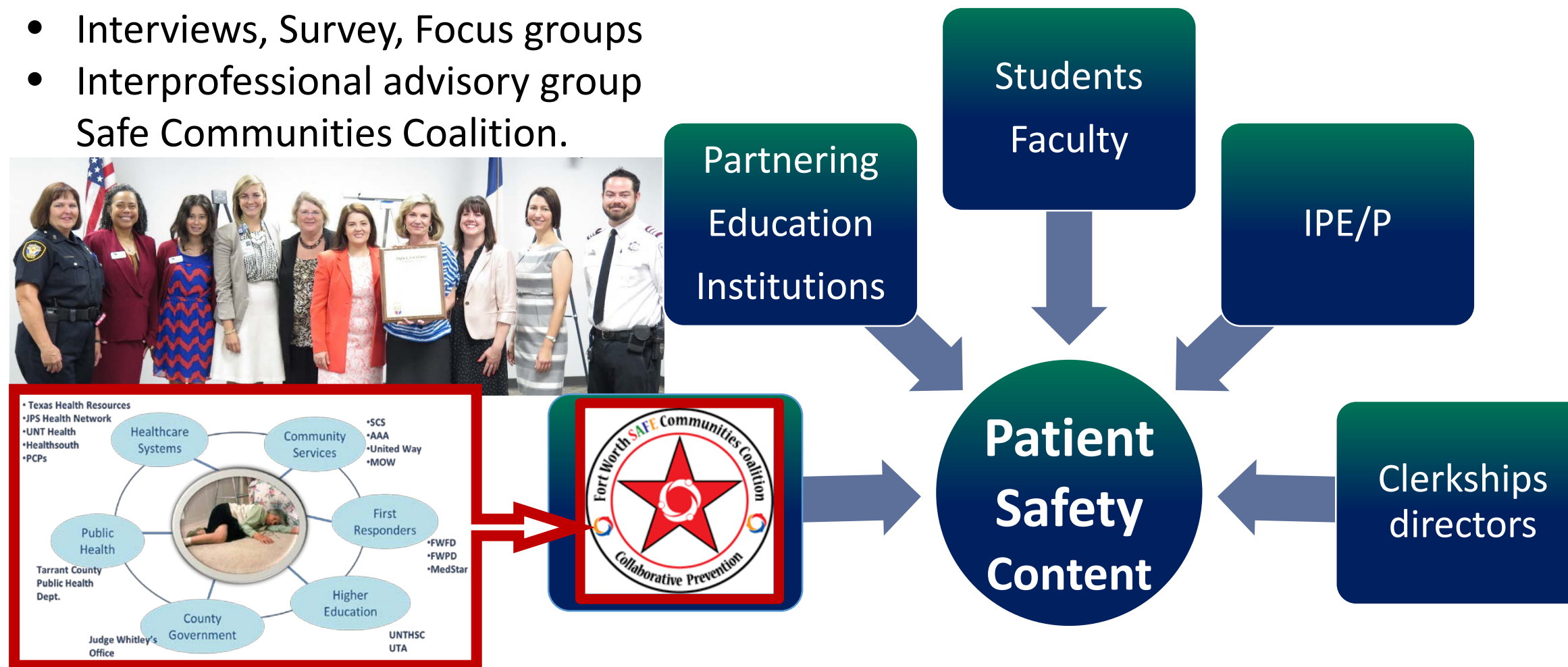
Develop the **content** and **web platform** for delivering **innovative interprofessional simulations** to improve patient safety, thus supporting the education pillar of the PSI.



## Approach

### 1) Content: IPE/P Simulations for Patient Safety Curriculum

- Interviews, Survey, Focus groups
- Interprofessional advisory group Safe Communities Coalition.



### 2) Web platform

#### Investigate available products

Tested 5 web platforms/virtual simulations software:

SimTabs, Clinispace, Serious Games Institute, Virtual Sim Center, EMS

#### Decision to partner with EMS

In collaboration with IT weighted the decision to purchase, develop in house or enter into a partnership with a software company.

#### Feedback for design

Iterative process, monthly feedback for designers to ensure clinical relevance.

## Evaluation strategy

### Developed

- iRAT/ tRAT tests for each simulation scenario
- Student and faculty pre- and post- surveys<sup>3</sup> and knowledge quizzes.

### To be identified/developed

- Student behavior and practices about patient safety while in clinical rotations
- Instrument to gather data from graduates and employers on performance

## Impact

The ultimate outcome will be an improvement in PS measured by increased knowledge, competencies and attitudes of students and health care providers; fewer critical errors/ near misses and higher quality of care.

## Acknowledgements

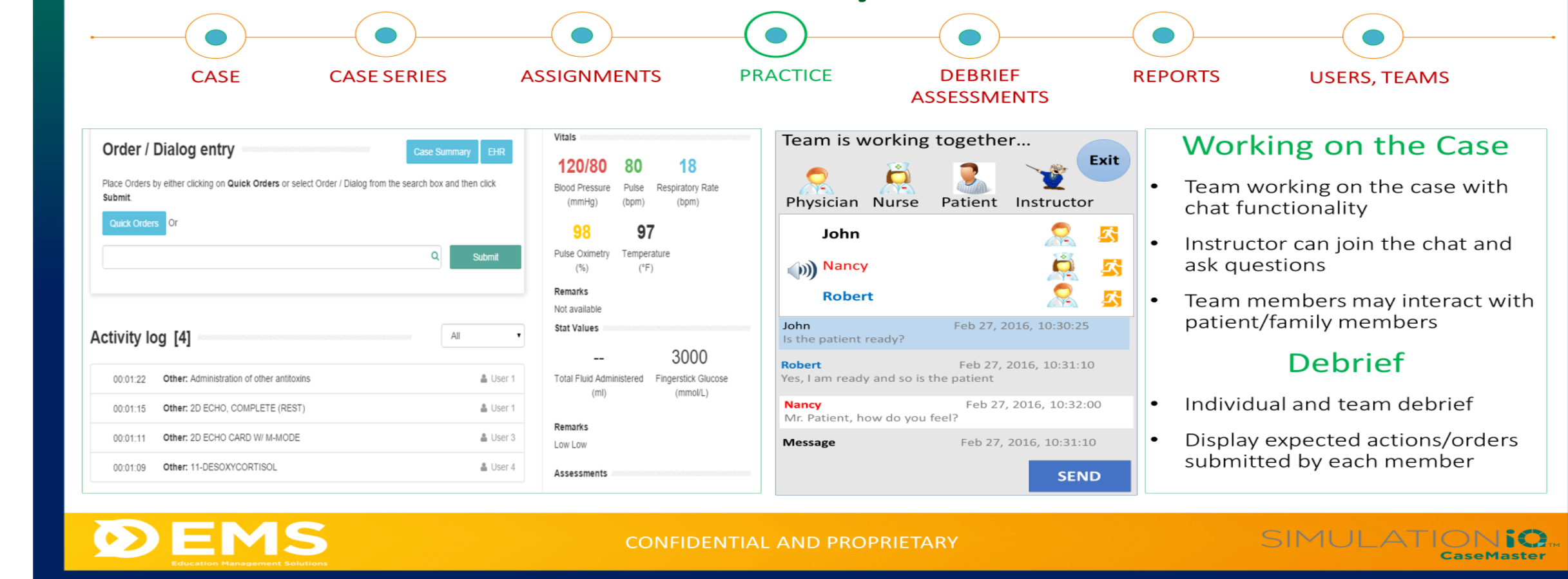
I am grateful for the support received from the members of Safe Community Coalition, in particular the Falls and Elder Abuse Prevention Task Forces, and my team in the Human Movement Performance Lab .

## Outcomes

### Patient Safety Curriculum

Priority Topics	Delivery methods	Assessments
<ul style="list-style-type: none"> <li>1 Communication</li> <li>2 Protocols and safety practices</li> <li>3 Ethics and professionalism</li> <li>4 Reporting errors</li> <li>5 Population Health</li> <li>6 Leadership skills</li> </ul>	<ul style="list-style-type: none"> <li>1 Simulations</li> <li>2 IPE/P activities</li> <li>3 IHI Open School</li> <li>4 Team based learning</li> <li>5 Lectures</li> </ul>	<ul style="list-style-type: none"> <li>1 Individual &amp; team</li> <li>2 Knowledge</li> <li>3 Competencies</li> <li>4 Behaviors</li> <li>5 Practice</li> </ul>

### IPE/P Simulation System Workflow



## Next Steps

- Review pilot feedback, submit first two simulation scenarios for publication.
- Seek Intellectual Property copyright protection for simulation content & software.
- Scale project to over 900 postgraduate professional students; Implement evaluation strategy and collect student and faculty data.
- Submit training education HRSA grant using preliminary data.
- Commercialization/licensing of web platform and simulation scenarios

## References

1. James J,P; A New, Evidence-based Estimate of Patient Harms, Journal of Patient Safety, 9:3 p122-128, 2013
2. Sentinel Alert, Preventing falls and injuries in health care facilities. Joint Commission, Issue 55, Sept 2015
3. Interprofessional Learning and Collaboration Scales Lie, Fung, Trial, & Lohenry, 2013; Vari et. al., 2013,

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