

# Playing games: A novel approach to teach systems-thinking

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## TL;DR

### Problem

How to teach systems thinking to medical students who have little experience and exposure to healthcare delivery and are focused on preparing for Step 1 of the USLME?

### Experiment

- Adapted Friday Night at the ER® (FNER®) to an 80-minute version.
- Played the game in students' final clinical skills lab.
- Led by faculty who is a trained facilitator with faculty support.

### Why games?

- Increase positive affect, decrease negative affect
- Bolsters intrinsic motivation to engage through solving difficult problems in a safe space with clear goals and structures

### Results

- Game play highly engaging for students, well received.
- Debriefing & reflection are key for extracting the lesson from the game.
- Faculty actively engaged the experience.

### Recommendations

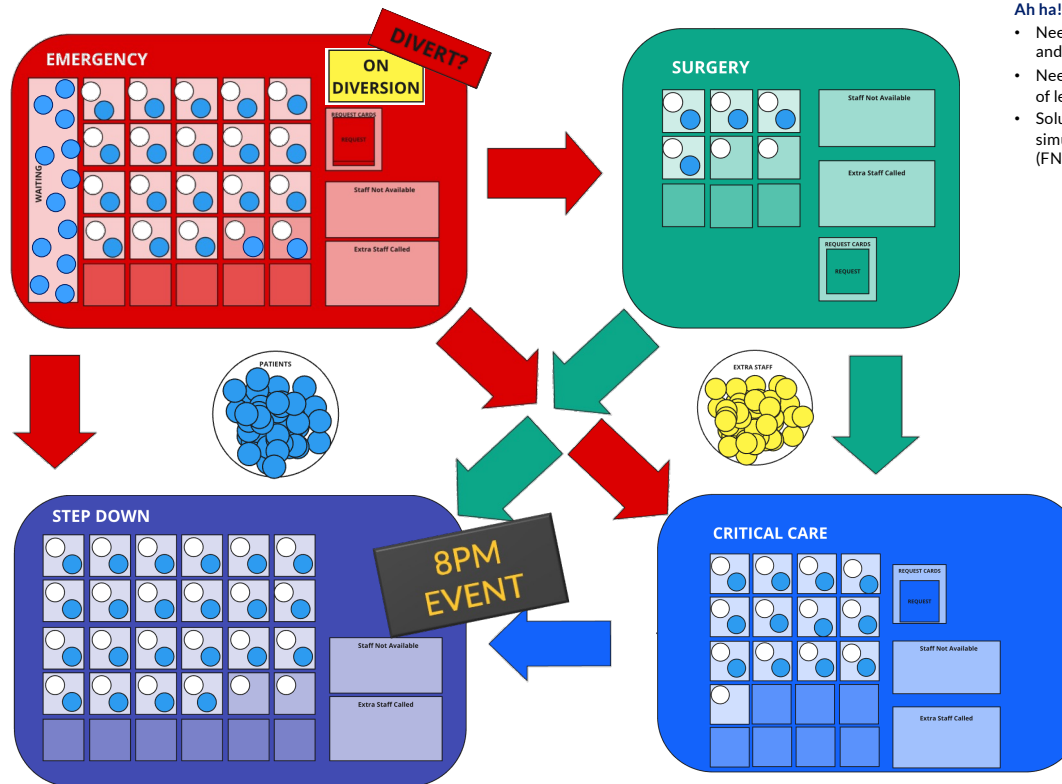
- Continue to use
- Improve offering based on experience
- Determine how to measure change in students' system thinking abilities
- Build in connections and interleavings (Agarwal & Bain) from game play into other health systems segments

## What brings you in?

Narrow focus and specialized expertise are important to healthcare and to students. Problems arise when this leads to silos and siloed thinking. Health system science and system-based practice offer urgently needed skills to help physicians navigate and improve complex healthcare systems, to produce results that are based on design.

### Guiding questions

- How can MD students focus on highly specialized biomedical knowledge and simultaneously acquire a broader systems perspective on healthcare?
- With high stakes exams on the horizon, how do we engage students in learning important but seemingly indirect concepts?



## Discharge plan

### Evaluation

The quantity and quality of student feedback suggested that experience was enjoyable, engaging, and provided learning. Specifically, the challenges and surprises coupled with clear goals enhanced learning. One student team asked to stay late to complete the game play. The debrief and reflection components were key for extracting the lesson from the game.

### Planning the future

- How to measure change in systems thinking?
- Identify best placement within the curriculum.
- Use the experience to anchor future lessons about systems thinking

## An exploratory operation

Most often, MD students must respond to questions that expect a single correct answer, known to faculty. Stakes can be high, during education as in practice, when an incorrect response is offered. But complex systems are nonlinear, unpredictable. Most often, what is needed is not a single "correct" answer, but a process of discourse and discovery. To learn this process, students must be able to try new ideas without risk, becoming engaged in shared experiences from which they can continuously learn. Learning to learn as a lifelong pursuit.

Game-play experiences have been defined with words such as: enjoyment, absorption, creative, active, affective. Students become immersed when they make important decision, have clear goals, and work in a social network. Through game play, students learn in ways not otherwise available.

### Ah ha! moment

- Needed: An approach that engages learners and leads to systems thinking
- Needed: Relevant connection to next phase of learners' education and careers
- Solution: Immersive healthcare based simulation game, Friday Night at the ER® (FNER®)



Come play with us

## Intensive and complex learning

### Time is of the essence

Students watched a recorded introduction and instructions prior to the session (~50% of students watched). They work through the first 12 hours of gameplay. During this time, students managed patient access and flow, allocation of resources, and responded to adverse events.

### A strategic pause

Half-way through the time, students engaged a mini-debrief, introducing them to the three pillars of systems thinking as outlined by the game creators: Collaboration, innovation, and data-driven, and the importance of structures. Student teams made decisions about how they wanted to change their game play before resuming.

### Learning from experience

At the end, they scored their progress seeing how their decisions impacted patient quality and hospital financial performance. Each team also described their main takeaway from the experience.