# Ready Player PHARM 2024: Using Virtual Gaming Strategy to Improve Learning

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# Meet the Faculty

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# Relevant Financial Relationship Disclosure

- No one in control of the content of this activity has a relevant financial relationship (RFR) with an ineligible company.

As defined by the Standards of Integrity and Independence in Accredited Continuing Education definition of an ineligible company.

# Learning Objectives

- Discuss how gaming can improve the learner's experience.

- Identity new and engaging virtual gaming strategies for inclusion into precepting and learner didactics.

- Interpret the avenues preceptors can use to increase learners' engagement and skill using educational games.

**Play** is our brain's favorite way of learning

- Diane Ackerman

**Gamification** is the use of game design and mechanics to enhance non-game contexts by increasing participation, engagement, loyalty and competition.

Holloway S [Internet]. TopHat. (May 2018; accessed: June 2024). Available from: https://tophat.com/blog/gamification-education-class/

# Improving Learner Experience



**Teamwork**

**Engagement**

**Enjoyment**

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# Scoreboards

- Scoreboards are known as the "motivator" in whole brain teaching.

- Actively engages the limbic system and creates emotional engagement.

- Using often and keeping it close makes them most effective.

Camden S. [Internet]. Scoreboard: The Motivator. (accessed 2023). Available from: https://thereflectiveeducator.com/scoreboard-the-motivator/#:~:text=The%20Scoreboard%20can%20be%20used,Frowny%20mark%20on%20the%20Scoreboard

Whole Brain Teaching. [Internet]. Motivation: Scoreboard. (updated 2022; accessed 2023). Available from: https://wholebrainteaching.com/motivation/scoreboard/

# Escape Rooms

# Escape Room

- **Escape rooms** are "live-action team-based games where players discover clues and solve puzzles […] in order to accomplish a specific goal, usually escaping from the room, in a limited amount of time

- **Incorporation in education**: complex puzzles help complement and reinforce topics (reiteration, making connections, application)

- **Benefits:** review key content, debrief of new material

- Escape Rooms: Everything You Need to Know. [Internet]. The Escape Room. (updated: 2021; accessed: 2024). Available from: https://theescapegame.com/blog/what-is-an-escape-room/
- French S, Marmor Shaw J. [Internet]. Market Watch. (updated: July 2015; accessed 2024). Available from: http://www.marketwatch.com/story/the-weird-new-world-of-escape-room-businesses-2015-07-20.

# Escape Room: NAPLEX preparation



The Game (link on next page)

Rules of the Game:

- All clues and information are found on the form – no information is "hidden"

- You may use any reference (i.e., electronic) to help with answering questions

- How did we make this QRS code? https://www.qr-code-generator.com/

# Learning Activity 1

- Please pause the presentation recording at this time.

- Please take the next 14 minutes to complete the virtual escape room using the link below.
  https://docs.google.com/forms/d/e/1FAIpQLSfp19Yzl5wc0rn0afi2jKgPv44bGLeHBixS0FaG_DXGQ32OpQ/viewform?usp=sf_link

- Please use any remaining time to reflect on:
  - What did you like?
  - What was a challenge?

- Once you have completed this activity, you may resume the session recording.

# Tips and Lessons Learned

- **STEP 1:** When building an escape room, pre-plan for **key take aways**
  - Example: NAPLEX frequently tests on brand-generic

- **STEP 2:** Determine your time and content
  - "easy clue": 2-5 minutes
  - "difficult clue": 10-15 minutes

- **STEP 3:** beta-test

# Tips and Lessons Learned

- Tools:
  - Google Forms for foundation of material
    - Included in reference guide - attachments for this presentation

  - Create clues in power point, use snip it tool to save pictures on desktop and upload ("add image") in google forms
    - Included in reference guideline – attachments for this presentation



BUILDING A VIRTUAL ESCAPE ROOM

Platform utilized: Google Forms

1. In google drive, click "new", select "more" >> "google forms" >> "blank form"
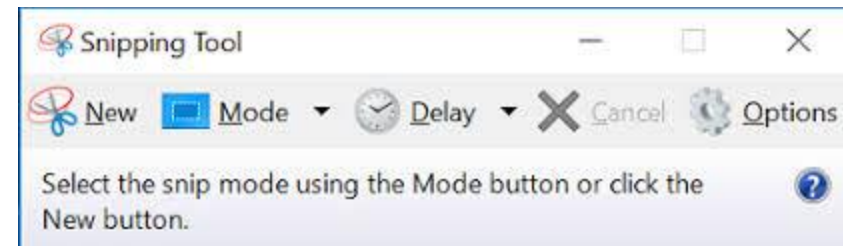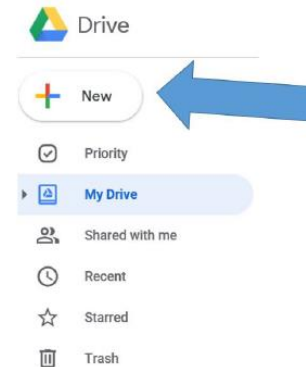
# Other Virtual Platforms

Escape Room Maker

Genially Escape Rooms

# Application Ideas

*Intrigued but unsure how to start? How it fits into practice?*

- **Clinical case** – acute or ambulatory based
  - Ambulatory – patient with urinary incontinence, tobacco cessation

- **Resources:**
  - Kesler Science
  - Teach Every Day
  - Lock Paper Scissors

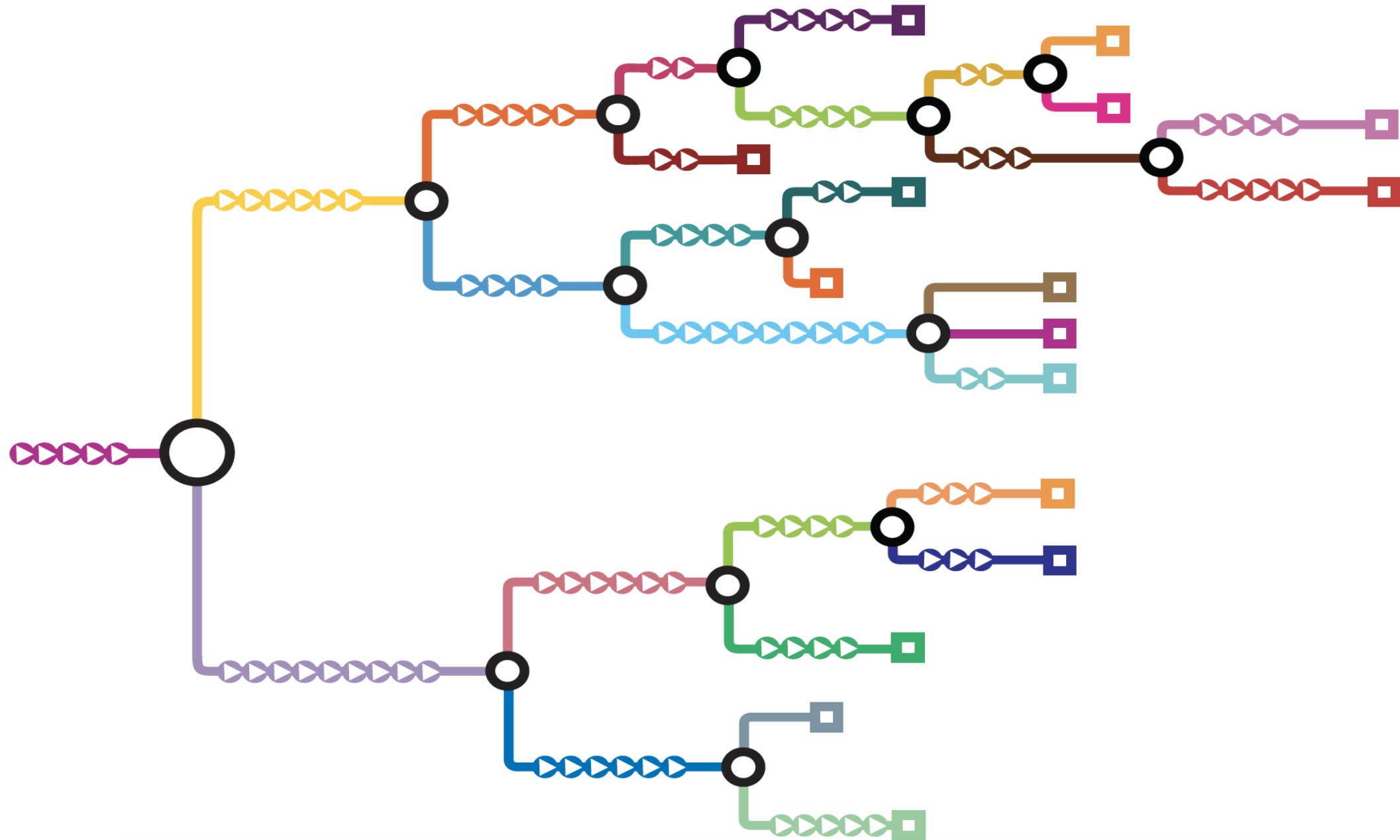# Choose Your Own Adventure

# Choose Your Own Adventure (CYOA)

- **<u>CYOA books:</u>** present a story in which read until come to a decision point, which prompts the reader flip to another page, backward or forward

- **<u>Incorporation in education</u>**: can take on any format to create series of decision trees built in context of case scenario

- **<u>Benefits:</u>** incorporate consequences to decision making and connect to real world experiences

Aleckson J. [Internet]. Web Courseworks. (accessed 2022). Available from: https://webcourseworks.com/elearning-simulations-choose-your-own-adventure/.
Carroll C. [Internet]. KevinMD. (updated 2017; accessed 2022). Available from: https://www.kevinmd.com/2017/09/gamification-medical-education-choose-medventure.html.

# Choose Your Own Adventure: Interviewing
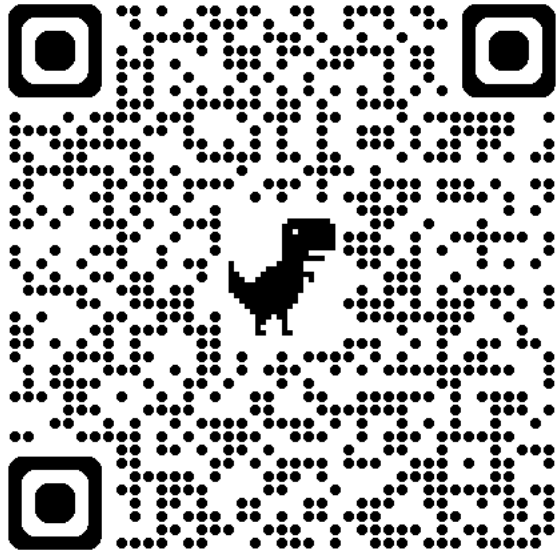


The Game (link on next page)

- YOU choose your adventure but be careful – some choices may have consequences.

- You may use references to help with making decisions. The theme is around an important professional development topic – interviews!

# Learning Activity 2

- Please pause the presentation recording at this time.

- Please take the next few minutes to complete the virtual CYOA using the link below.  We encourage you to try going through multiple times to see the various paths! https://forms.gle/VdCRN5rJ9U2HRVAF7

- Please use any remaining time to reflect on:
  - What did you like?
  - What was a challenge?

- Once you have completed this activity, you may resume the session recording.

# Tips and Lessons Learned

- Think of GOAL
  - Reinforce knowledge?
  - Explore ambiguous content?

- YOU decide for each "choice"
  - Positive or negative outcome
  - Paths that "dead-end" or diverge

- Preparation – draft first on paper with flowcharts

- Electronic forum: slides, forms
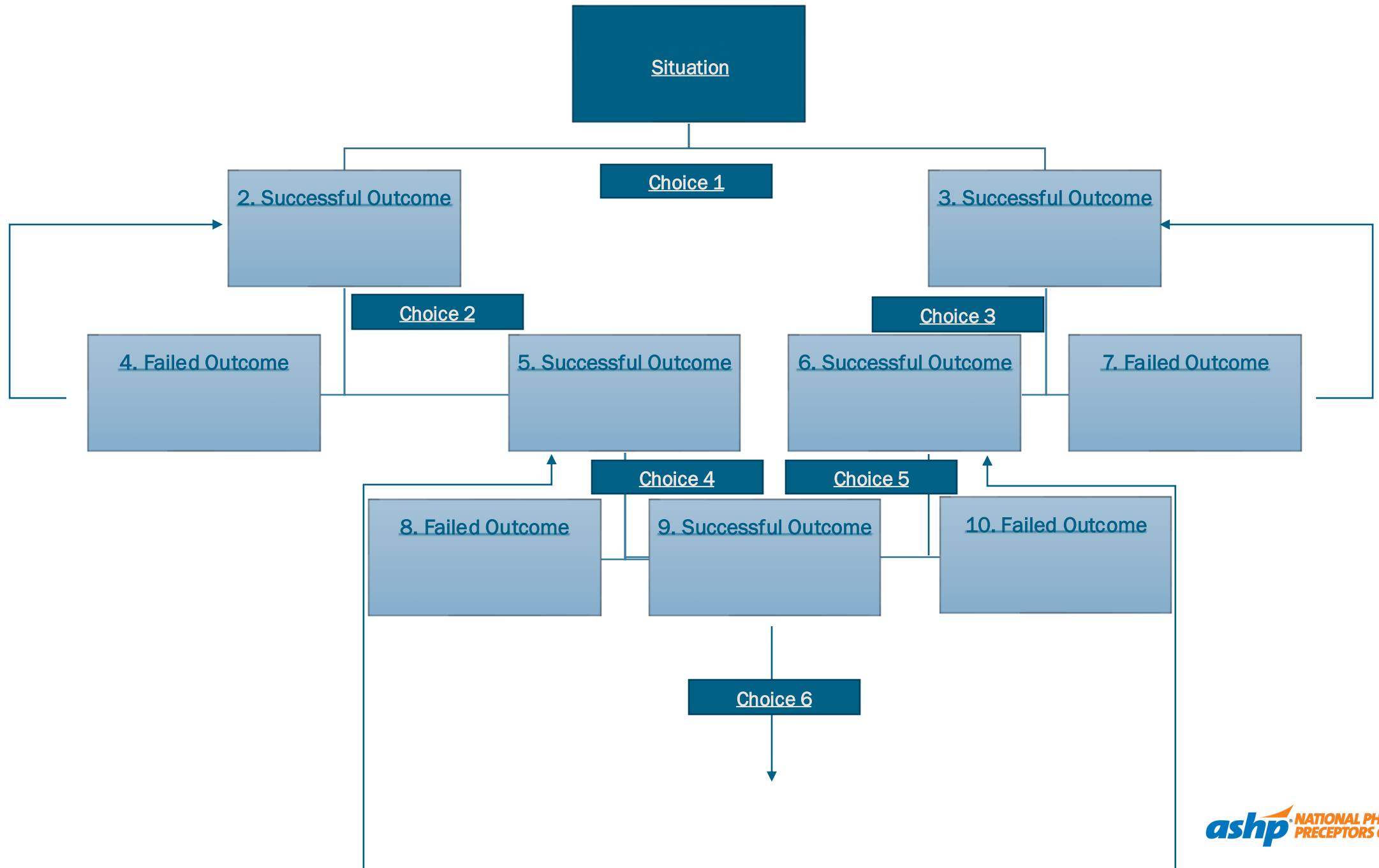
# Application Ideas

*Intrigued but unsure how it fits your teaching?*

- Clinical case – acute or ambulatory based
  - Acute –patient presenting with diabetic ketoacidosis
  - Ambulatory – chronic diabetes and associated comorbidities

- Ethics discussions – allows exploration of decision outcomes
  - e.g., end of life care, treatment for minors, medical exemptions

- Blend of both clinical and ethical decisions -  some "correct" choices and some ambiguous/divergent

# Building a CYOA -- PowerPoint
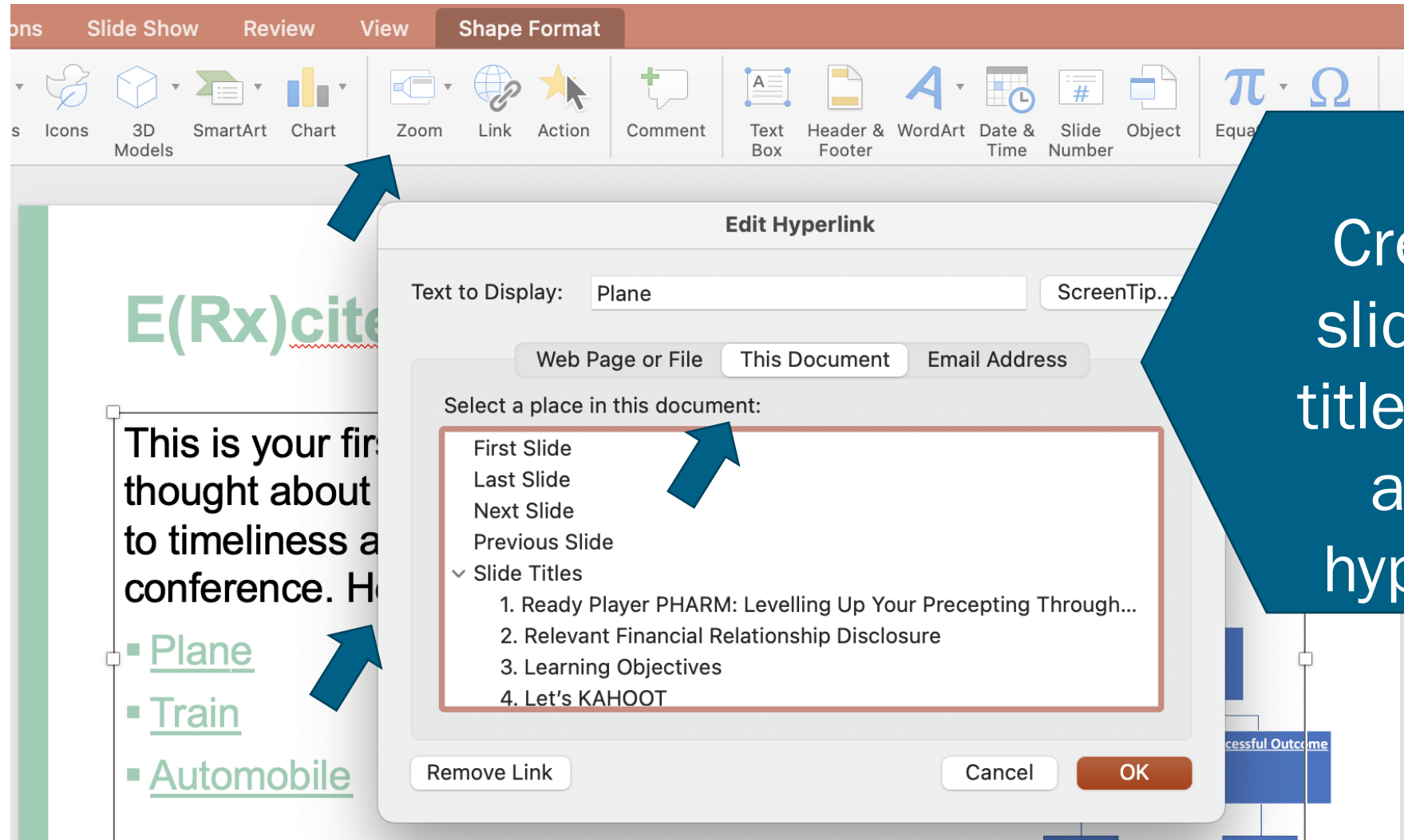


Tip: Create all slides with titles before adding hyperlinks

# Building a CYOA -- Forms

Use multiple "sections" to navigate through with different options



Tip:
Create all sections with questions before linking

# Live Action Role Play

# Live Action Role Play (LARP)

- **<u>LARPs</u>** "consist of two or more people each pretending to be someone or something else in a predetermined imaginary setting that takes place in a real location."
  - Improv acting for a set period of time
  - Examples: murder mystery, who-done-it

- **<u>Incorporation in education</u>**: complex narrative which can incorporate difficult situations and team-play to foster critical analysis, communication, and learning.

- **<u>Benefits:</u>** replicates a team-based environment in a safe space

Haiken M. <u>Gamify Literacy</u>. 2017. International Society for Technology in Education..

# A Scene at the Hospital

Skylar Smith presents to the ED this morning with a new complaint of red/black stool with abdominal cramping. The patient is on warfarin. Their INR in the ED is >8.

Please help determine what contributed to this new symptom.

| Medication | Directions | Comments |
|---|---|---|
| levothyroxine (SYNTHROID) 50 mcg tablet | Take 1 tablet by mouth daily before breakfast. | Takes 30 minutes before breakfast |
| Acetaminophen 325 mg tablet | Take 1 tablet by mouth three times daily as needed for pain | Uses for knee pain |
| Losartan (COZAAR) 100 mg tablet | Take 1 tablet by mouth daily | |
| Cranberry 200 mg capsule | TAKE 1 CAPSULE BY MOUTH EVERYDAY AT BEDTIME | OTC – using for UTI prophylaxis |
| triamterene-hydroCHLOROthiazide (MAXZIDE-25) 37.5-25 mg per tablet | Take 1 tablet by mouth once daily. | |

# Rules of the Game

- Please break into teams of 4. There are 4 "characters" to play: the patient, the ER provider, the primary care provider, and the pharmacy technician.  All but the ER provider has additional information.
    - If you do not have exactly 4 individuals, please have one individual cover 2 roles OR have two people cover 1 role.
    - If you have do not have 4 individuals, one person should play both the patient and pharmacy technician.

- To start the game please briefly read over your information "packet" and then "introduce" yourself.  The ER provider is charged with initiating the first questions and can ask any one in the group.  Once the ER provider asks the first question, anyone in the group can ask questions to any other member of the group.
    - <u>EXAMPLE 1</u>: One question to consider is "Have you taken any extra warfarin pills this past week?
    - <u>EXAMPLE 2</u>: If I was investigating a patient who not taking their semaglutide, I might start by asking if the patient was able to fill the semaglutide.  I would then call the community pharmacy and asking if they had any issues with insurance or if they had the medication in stock.

# Learning Activity 2

- Please pause the presentation recording at this time.

- Please take the next few minutes to review each character profile on the next slide.

- Please take time to reflect on:
  - What information did only each character know?
  - How could these gaps lead to medication errors?

- Please review the example activity video with debrief included on the following slides.

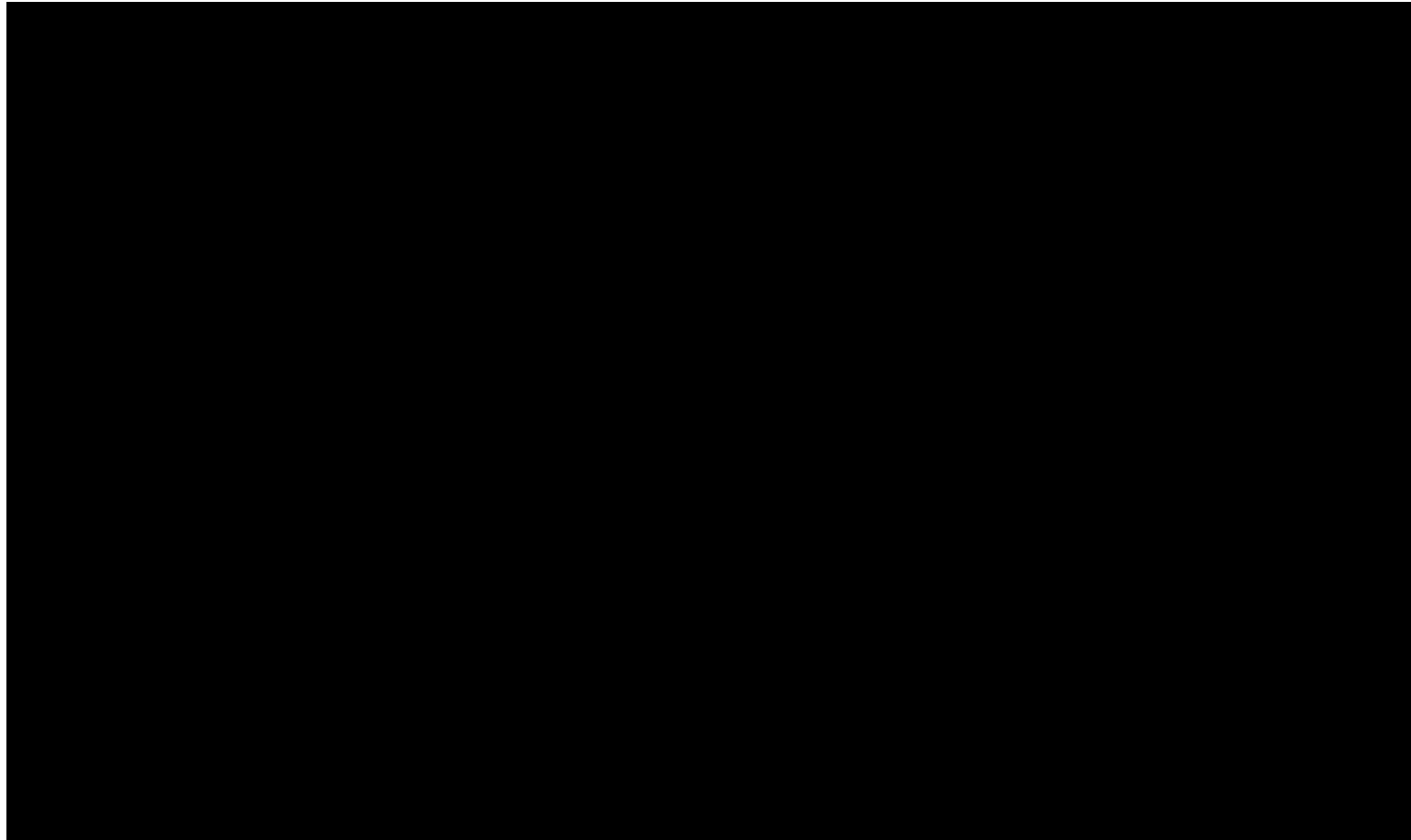- Once you have completed this activity, you may resume the session recording.

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# Character Profiles

- **Collins Palmer**, pharmacy technician: https://docs.google.com/document/d/1jk9IgAakTCIT8XiCYaW0dali0kVAs9YuD6iV6cSEqLY/edit

- **Skylar Smith,** patient: https://docs.google.com/document/d/1jfEkuDn1Zb8jzlYiPJcSH8597XJDRx9ssI1kFLJk0ZY/edit?usp=sharing

- **Alex Jones,** primary care provider: https://docs.google.com/document/d/11Rn1bjh0w8RUVz1dwZ72dDSsqImEIL9hydLV5WXnuH8/edit?usp=sharing

# Example Activity

# Debrief Example Questions

- What contributed to an elevated INR?

- What key questions are necessary to ask when managing warfarin?

- How could this situation have been prevented?

# Tips and Lessons Learned

- Use a clinical case as a potential road map.

- Think TEAM and INTERDISCIPLINARY.

- Depending on level of education, consider prompting questions.
    - Example: "Does anyone know who wrote the antibiotic?" "Who would have access to the prescription?"

- Encourage players – there is no "correct" answer – Lead a team debrief following.

# Application Ideas

*Intrigued but unsure how it fits your teaching?*

- Ethics discussions – allows exploration of decision outcomes
  - E.g., end of life care, treatment for minors, medical exemptions

- Reach out to your Medication Safety Officer for example cases submitted through errors reporting

- Clinical case – acute or ambulatory based
  - Getting patient to goal; new diagnosis

# Real World Precepting Scenarios and Engaging Learners

# Incorporating Gaming Into Practice

Traditional Didactic Sessions

Asynchronous Learning

Interdisciplinary Involvement

On the Fly

# Traditional Didactic Sessions

- Urinary Incontinence, Prediabetes → Escape Rooms

- Pharmacotherapy & Therapeutics Reviews → Team Trivia

- Asthma, Medication Shortages → CYOA



**Call the pharmacy to discuss supply of medications**

*You speak with the technician at the local pharmacy, who explains they only have 6 tablets remaining of methylphenidate extended release 36 mg, so not enough to fill the 30 day prescription for the patient. They are currently unable to order more from their supplier.*
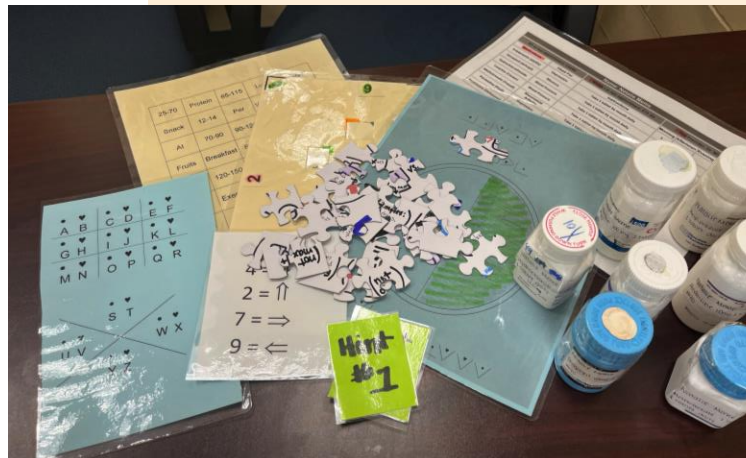
*As the prescriber, you decide to:*

○ Tell the patient to fill the partial prescription for 6 tablets to get them through final exams

○ Advise the patient to ask other pharmacies if they have the medication in stock

○ Ask the pharmacy some additional questions about current inventory while you are on the phone

Back     Next     Clear form

## Round 3

Allocate points 2/4/6 by category
1. CGMs
2. Asthma
3. Osteoporosis

# Asynchronous Learning

- Self Study Tools → CYOA

- Board Review Questions → Scoreboards

- Convert Topic Discussions to Escape Rooms → Debrief After Completed

The physician agrees with this recommendation, especially montelukast, which she believes will add bemefit with his allergies. What dose do you recommend for this patient (13 yo)?

1. 4 mg chewable tablet daily
2. 5 mg chewable tablet daily
3. 10 mg tablet daily

**Thinking Point:** What are some side effects of montelukast? What is its mechanism of action?
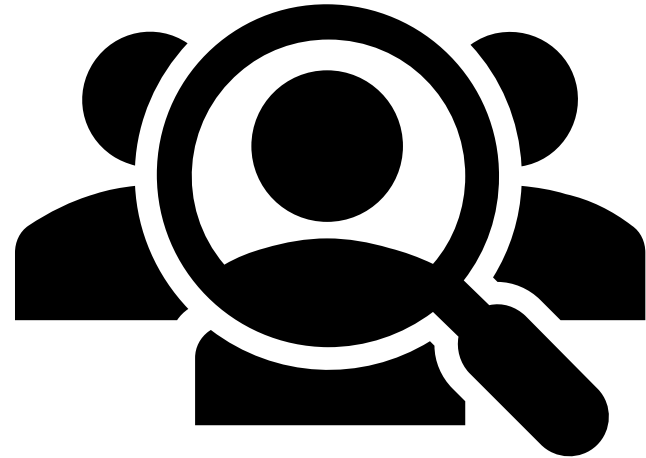
# Interdisciplinary Involvement

- Medical Resident Pharmacy Workshop – LARP/relay

- Health Science Campus Interprofessional Events – CYOA and mistake rooms
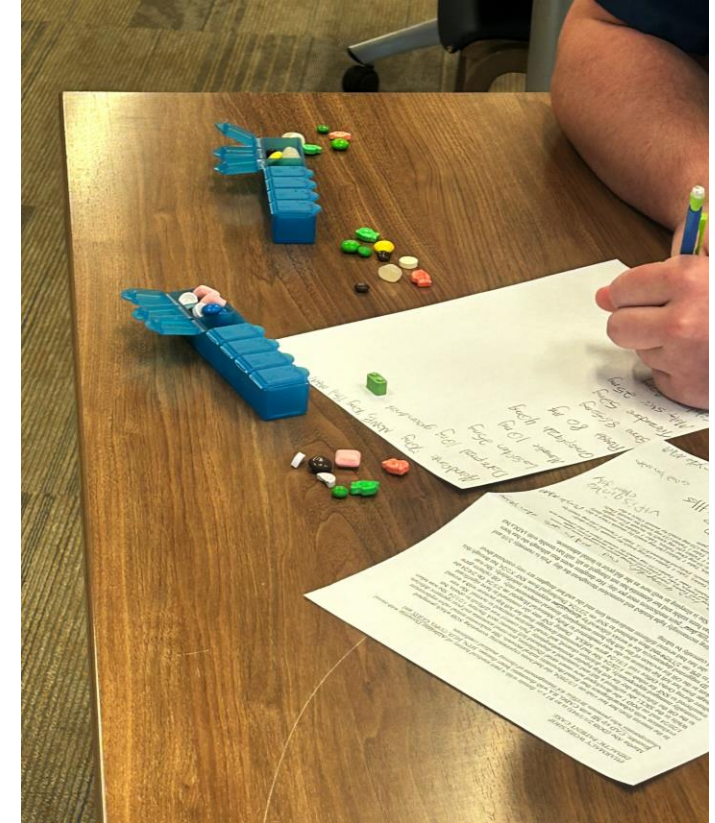
# On the Fly – Other Gaming Techniques

- Family Feud – multiple correct answers, but one may be "best" response

- Jeopardy Style Wager – how confident are you in your answer?

# Facilitating Engagement

Can you make it a competition? Add incentive?

Study tools (emphasize value and provide helpful aid)

Incorporate movement

Involve learners in creating content

Anything can be gamified!

# More Gaming Techniques

| | | | |
|---|---|---|---|
| Polling | Scavenger Hunt | Activity Boards | Relays |
| Jeopardy | Family Feud | Corners | Debates |

# Want to Read More?

**Gamify Literacy**

by Michele Haiken

**Explore Like a Pirate**

by Michael Matera

**Make It Stick**

by Peter C Brown

# Key Takeaways

**1** Gamification increases learner engagement and overall enjoyment of a traditional didactic setting

**2** Escape Rooms, Choose You Own Adventures, Live Action Role Plays are examples of effective gaming styles to incorporate into precepting and education

**3** Various platforms and tools can be utilized to help preceptors incorporate gaming into education – such as google forms

**4** Time and confidence can be barriers to incorporating gaming into preceptorship; experience and practice can help overcome these concerns

**5** "Nothing lights up a child's brain like play." – Dr. Stuart Brown, MD   *Go and play!*

# Questions?