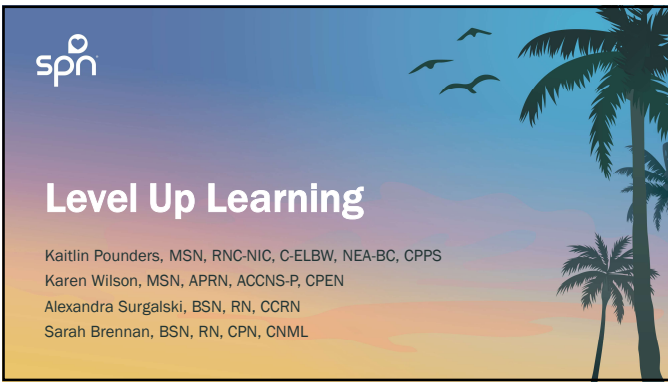
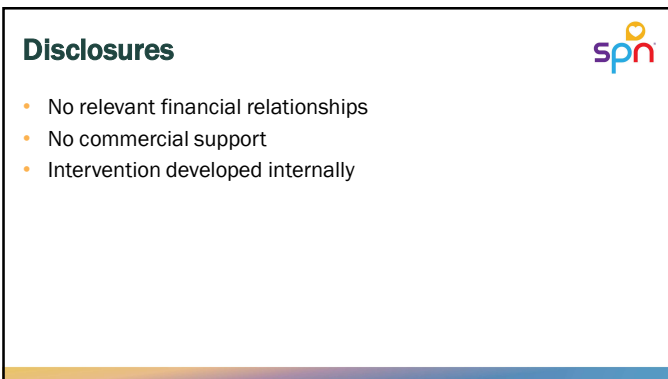




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2



3

Learning Outcomes



At the conclusion of this session, participants will be able to:

- Describe how gamified educational strategies enhance nursing leader engagement and knowledge retention.
- Compare traditional didactic education with gamified approaches for large-scale practice change.
- Apply system-level strategies to implement gamified education within their own institutions.
- Evaluate facilitators and barriers to gamified educational interventions.

4

C.S. MOTT CHILDREN'S HOSPITAL UNIVERSITY OF MICHIGAN HEALTH



University of Michigan Affiliations
 Medical School
 School of Nursing

1,500 Registered Nurses
 Magnet Designation since 2017
 High Reliability Organization
 2026 NCAA Men's Basketball Champions



5

Intervention Background




- Commitment to patient safety
 - High Reliability Organization
 - Spans all organization levels from executive to frontline
- PIVIE with serious harm events escalated through established patient safety communication channels
- Resulted in executive level attention and a current state assessment of internal peripheral IV practices.



Image: 1-2-year-old patient admitted with RSV sustained a PIVIE with serious harm injury. Emergent surgical intervention required to preserve the extremity.

6

Current State Assessment Findings

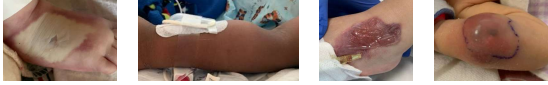


Nursing Practice Variation

- Standard of care
- Definition of harm
- Patient safety reporting differences

System Optimizations


- Lack of PIV practice and injury treatment oversight
- Pediatric practice described in an adult guideline



Images 2-5: Pediatric peripheral IV infiltration and extravasation injuries. Infusion agents at the time of injury from left to right include lipids, D5 0.45 NaCl, vasopressor infusions, and calcium gluconate.

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Intervention Timeline




The timeline consists of several interconnected milestones:

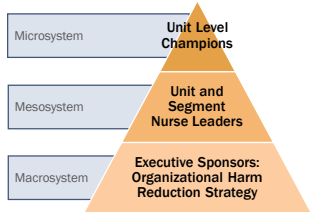
- Current State:** October 2022 - January 2023
- PIVE Prevention Task Force:** January 2023 - Present
- Best Practice Alignment:** February 2023 - July 2024
- Key Stakeholder Review:** November 2022 - January 2023
- Review of Best Practices:** January 2023 - September 2023
- Pediatric Guideline:** January 2023 - July 2025
- Guideline Implementation:** May 2025 (highlighted with a red circle)

8

Intervention Overview




Systems Alignment




Strategic Alignment


- High reliability principles
- Culture of safety
- Evidence based practice dissemination
- Change management theory

9


The Practice Problem – Systems Context 




Tasked with implementation of a newly developed clinical practice guideline



Significant evidence-based practice changes




Impacts 1,500 nurses in the pediatric segment



Includes a culture shift in pediatric PIV management and harm prevention

10

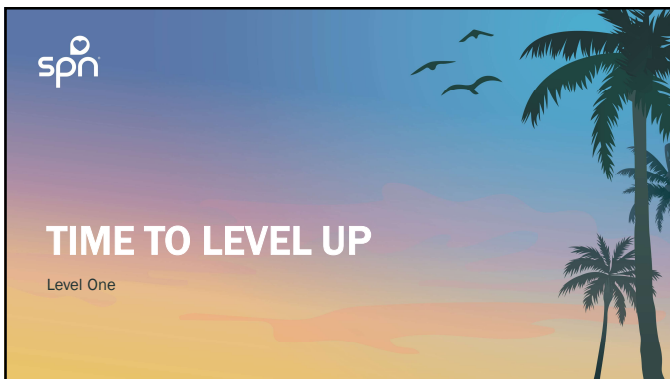
Why Traditional Education Falls Short 


PowerPoint based or on-line lecture style learning

- Passive content delivery
- Limited psychological safety for peer collaboration
- Variable retention
- Difficulty translating knowledge into practice

Challenge: How do we prepare nurse leaders to champion meaningful change across complex health care systems?

11

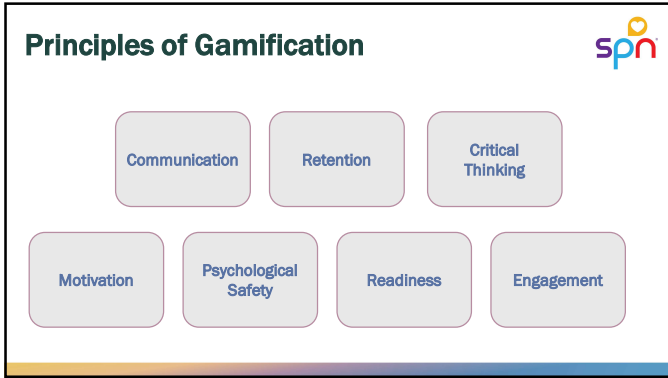




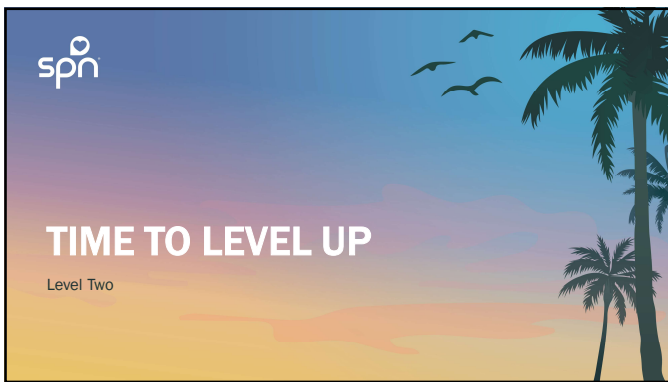
TIME TO LEVEL UP

Level One

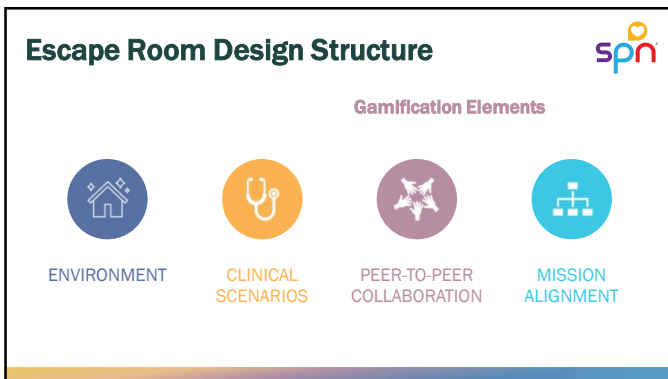
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14






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Escape Room Design Structure




Environment

- Competitive team format
- Timed problem solving
- Motivational auditory stimulus
- Individual team stations
- Central station to 'Level Up'
- Correct: Next scenario
- Wrong: Penalty

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Escape Room Design Structure






Scenario Based

- Application of evidence-based practice
- Hands on learning and simulations
- Structured step-by-step guidance
- Customized scenarios to emphasize significant practice changes


Escape Room Missions:

1. Review your patient assignment to identify which patient is at high risk for developing a PIVIE.
2. Identify which patient has a PIVIE.
3. Unlock the unit's file cabinet during an internet downtime to retrieve the pediatric guideline and successfully treat a pediatric PIVIE.

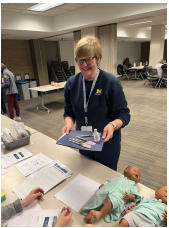





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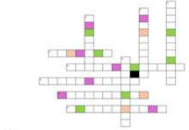
Escape Room Design Structure



Scenario Based

Scenario 2 Congratulations, you have successfully administered the antidote to Sam. You are triggering the alarm which has completed your documentation and has your attention that you have finished the scenario. To recover your new password, first solve the crossword puzzle, then uncover the secret message.



Across

1. A high-risk illness
2. What do you do when the muscles that allow you to move are paralyzed, stiff, and unresponsive?
3. An electrical safety procedure that is used to prevent energy from passing through a patient's body.
4. A type of IV pump


Down

1. Rapid death
2. A medical condition that is caused by the inflammation of the brain
3. A type of pump that is used to deliver medication to a patient
4. A type of pump that is used to deliver medication to a patient

Answer: _____

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Intervention



PICOT Statement


P: Pediatric nursing leaders
I: Escape room based gamified learning
C: Traditional lecture-based education
O: Perceived learning effectiveness, engagement, and collaboration
T: Immediately post-intervention

Measures

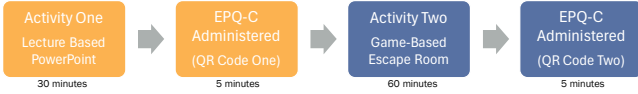
- Learning modality preference
- Learner perceptions of seven domains

22

Intervention Design: Methods



- Sequential, within-subjects design using identical content across learning modalities.
- The EPQ-C was administered following completion of each individual learning activity.
- Both learning activities were facilitated as in-person sessions during protected education time.




```

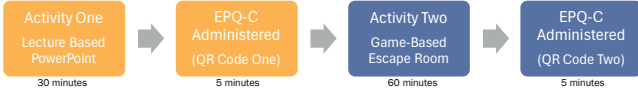
graph LR
    A[Activity One  
Lecture Based  
PowerPoint  
30 minutes] --> B[EPQ-C  
Administered  
(QR Code One)  
5 minutes]
    B --> C[Activity Two  
Game-Based  
Escape Room  
60 minutes]
    C --> D[EPQ-C  
Administered  
(QR Code Two)  
5 minutes]
  
```

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Intervention Design: Considerations



- Identical content delivered in both learning activities.
- Participants were unaware that the escape room learning activity was following the lecture-based learning activity.
- EPQ-C completion was performed in Microsoft Forms via QR code.
- Time was allocated in the session agenda for mandatory completion of the EPQ-C surveys.



```

graph LR
    A[Activity One  
Lecture Based  
PowerPoint  
30 minutes] --> B[EPQ-C  
Administered  
(QR Code One)  
5 minutes]
    B --> C[Activity Two  
Game-Based  
Escape Room  
60 minutes]
    C --> D[EPQ-C  
Administered  
(QR Code Two)  
5 minutes]
  
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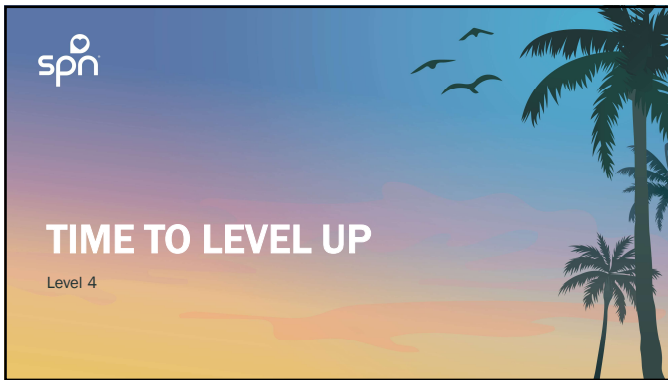
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Intervention Design: Participants

- Participants (n = 90)
 - Nursing Leaders
 - Clinical Nursing Directors
 - Clinical Nursing Supervisors
 - Educational Nurse Coordinators
 - Clinical Nurse Specialists
 - PIVIE Prevention Champions
 - Key Collaborators
 - Pharmacy
 - Patient Safety
 - Administration



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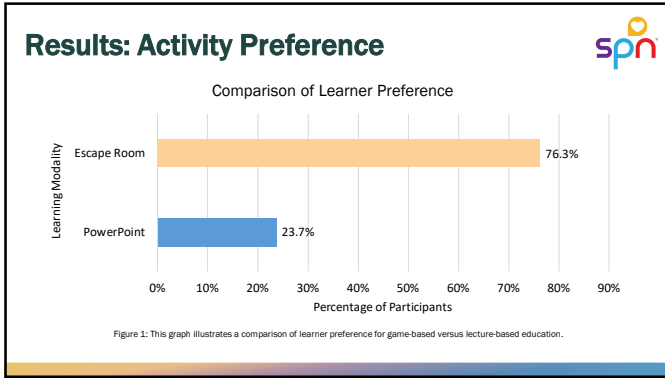
Intervention Design: Evaluation

Educational Practices Questionnaire - Curriculum (EPQ-C)

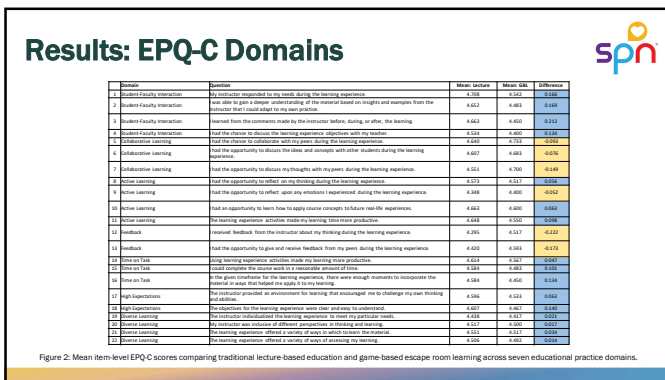
- Validated, 22-item instrument designed to evaluate instructional quality in educational interventions.
- Uses a five-point Likert scale to assess learner perceptions.
- Measures whether seven evidence-based educational domains are present in instructor-designed learning.
- Systematic comparison of education delivery methods

EPQ-C Domains
Student-Faculty Interaction
Collaborative Learning
Active Learning
Feedback
Time on Task
High Expectations
Diverse Learning

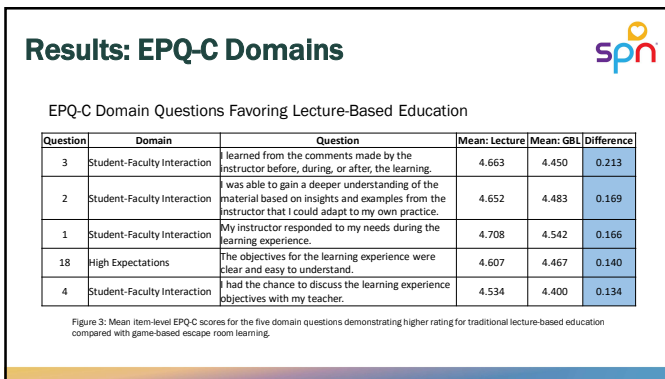
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Results: System Level Considerations

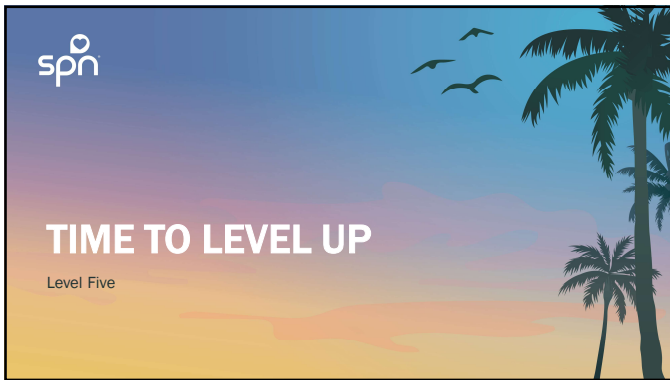
Gamification functioned to:

- Accelerate inter-departmental collaboration
- Reinforce a culture of safety
- Enhance peer accountability
- Amplify readiness for practice change



Game-based learning extends beyond entertainment, serving as a strategic tool in nursing education to enhance engagement and prepare nurse leaders for large scale evidence-based practice change.

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TIME TO LEVEL UP

Level Five

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Facilitators to Implementation

Design Framework

- Ensures intentional alignment with learning objectives, clinical content, and evaluation measures
- Prevention of cognitive overload by creating:
 - Clear structure
 - Defined roles
 - Purposeful scenarios

Champion Engagement

- Advocates for cultural change
- Enthusiasm enhances motivation for change
- Essential to bridging the gap between educational interventions and frontline practice

Mission Alignment


- Increases perceived relevance and urgency
- Improved engagement and knowledge retention
- Psychological safety encourages risk-free exploration of practice change.

Executive Sponsorship

- Visible top-down support for intervention
- Reduces resistance
- Resource securement (time and financial)
- Dedicated time for learning

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Barriers to Implementation



- Logistics**
 - Time and operations
 - Schedule coordination between frontline champions and unit leaders
 - Adequate physical space
 - Staffing constraints
- Resource Intensity**
 - Upfront investment
 - Development of physical and digital components
 - Supply ordering and restocking
 - Cost of supplies and labor
- Facilitator Preparedness**
 - Effective delivery depends on facilitator knowledge of:
 - Gameplay
 - Debriefing
 - Group dynamics
 - Clinical content
- Perception**
 - Skepticism of non-traditional education
 - Misperception of game-based learning as recreational

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Sustainability Strategies



- ✓ Embed into annual competency cycles
- 👤 Train additional facilitators
- ⚙️ Develop scalable/reusable templates
- 👩‍⚕️ Incorporate into nurse residency or onboarding programs
- 📊 Align with quality dashboards

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Replication Framework



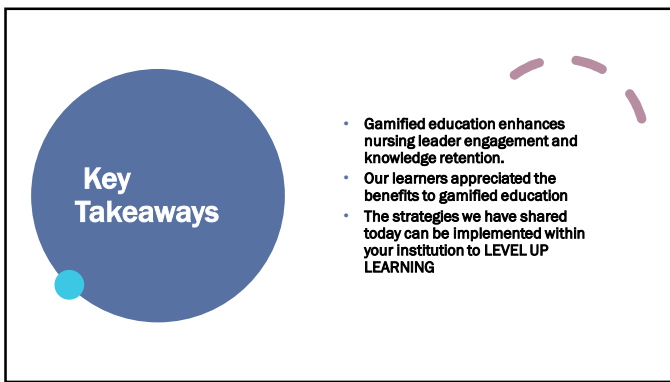
Reflect	Act
<ul style="list-style-type: none"> • What practice change are you implementing? • Who are your microsystem champions? • Where could gamification increase readiness? • What barriers exist in your setting? 	<ul style="list-style-type: none"> • Start with one high-risk guideline. • Engage leaders first. • Design short, scenario-based challenges. • Apply to patient safety outcomes. • Measure engagement and readiness.

Gamification does not require perfection – only intention, alignment, and champions.

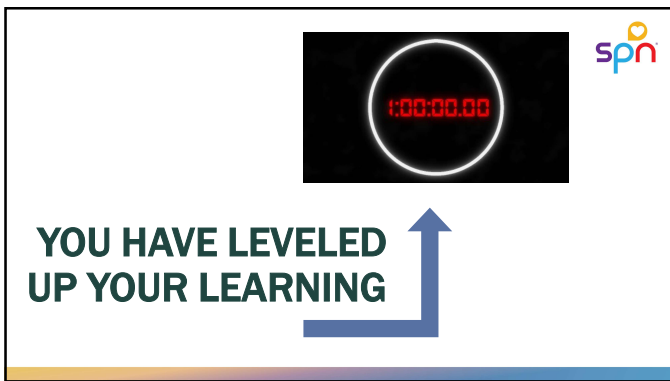
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