An Immersive Simulation and Virtual Reality Enhanced Course for the Recognition of Pediatric Non-Accidental Trauma (NAT)

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THE CHALLENGE: Why NAT Recognition Fails

STATISTIC:
20–35% Missed Opportunities

Sentinel injuries are frequently overlooked, leading to children returning with more severe, even fatal, injuries.

Barriers Beyond Knowledge

Diagnostic uncertainty, fear of caregiver confrontation, and legal complexity.

SUPPORTING FACT:
Education Gap

Most physicians receive <10 hours of NAT training, leaving moderate confidence in managing caregiver resistance or clinical uncertainty.

THE 4-STATION IMMERSIVE CURRICULUM

Station 1: VR Skills Training

Using Oculus Quest 2 and Lumeto software, participants practice focused examination techniques and vaccination guidance in a virtual environment.

Station 2: High-Fidelity Simulation

Participants engage with standardized patients in four scenarios, including acute sexual abuse and cases complicated by cultural norms.

Station 3: Museum of Illusions

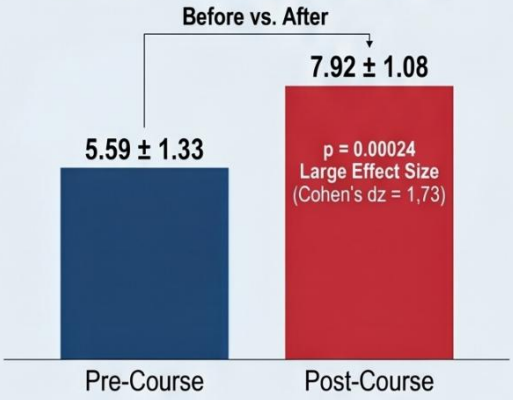
An interactive gallery where clinicians compare "pathognomonic" abuse findings against common pediatric "mimics" that can lead to false positives.

Station 4: Escape Room: "Room of Horrors"

A gamified station focused on identifying missed warning signs of neglect and recognizing internal cognitive blases in complex care cases.

RESULTS: Measuring the Impact

COMPOSITE READINESS BOOST



TOP 5 COMPETENCY GAINS

Competency Domain	Pre-Course Mean	Post-Course Mean	Mean Change
Clear, objective, legal documentation	4.69	7.85	+3.15
Focused physical exam & documentation	5.31	8.31	+3.00
Selection of appropriate initial workup	5.38	8.23	+2.85
Acting safely under uncertainly	4.77	7.31	+2.54
Safe disposition decision-making	5.54	7.85	+2.31

CONCLUSIONS & FUTURE DIRECTIONS

KEY FINDING:
Feasible & Scalable.

Multimedal approach is a viable alternative to traditional training with high participant satisfaction (9/10).

SUPPORTING FACT:
Lasting Impact.

Significant improvements maintained at one-month follow-up, suggesting durable educational value.

KEY FINDING:
Integration.

Recommended integration of this 1-day curricolum into Pediatric Emergency Medicine (PEM) fellowship progra and continuing professional development.

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