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SUMMARY

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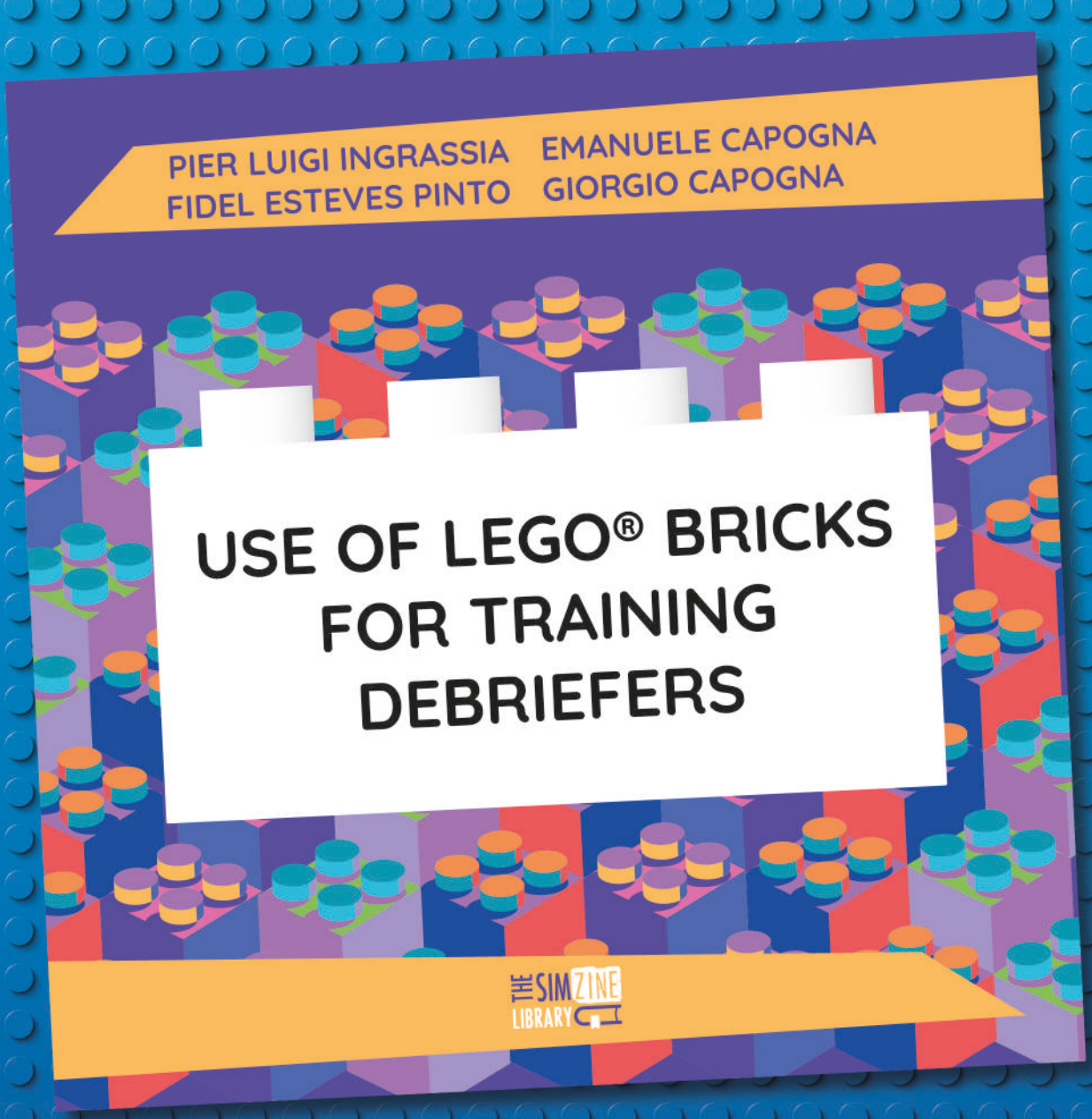

Are you ready to immerse yourself in a new and revolutionary training approach in the world of debriefing? Are you wondering how LEGO® bricks can completely change the way you train as a debriefer? Are you looking for a method that promotes a stimulating and relaxed learning environment?

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EDITORIAL

It's not enough to believe in simulation

Let's stop pretending. Simulation isn't a game anymore.

What began as an educational experiment, with computer-enhanced mannequins and enthusiastic pioneers, was long treated as a nice-to-have. Now, it is a must-have. Simulation trains critical thinking, develops psychomotor skills, reveals system flaws, and yes, saves lives! We have evidence of this. The literature is now full of examples.

Simulation is no longer just a teaching tool. It is now evolving into a vital component of healthcare systems. But while its impact has grown, the field itself has not kept pace in terms of structure, recognition, and regulation. We have research, technology, innovation but no consistent professional or institutional framework to support simulation across contexts.

It's time to change that. It's time to professionalize the entire *field* of healthcare simulation: its practices, programs, technologies, governance, and its people.

Simulation affects real-world outcomes. Poorly designed or poorly integrated simulations can reinforce bad habits, waste time, or even create dangerous assumptions. High-quality simulation, on the other hand, transforms clinical practice, challenges thinking, and strengthens systems. But the difference is not only in the people, it's in the systems behind them.

Would we accept unregulated medicine? Unlicensed engineering? Then why are we still accepting unsystematic, inconsistent, under-recognized simulation practice? And why should our decision-makers have confidence and invest in such an unstructured sector?

It's time to professionalize this sector of healthcare

Let me explain. Professionalization is not a buzzword. It's a necessary step toward ensuring quality, safety, and trust. It means establishing and upholding a shared framework of professional competencies, defining standards, building reliable structures, ensuring accountability, and embedding simulation as a recognized and respected domain in healthcare. Let's be clear: professionalization does not mean overregulation. The goal is not to impose rigid bureaucracy or create gatekeeping mechanisms that stifle innovation. Rather, good regulation protects the integrity of the profession while allowing flexibility and adaptation. And it reassures learners, colleagues, institutions and the whole community that simulation is a credible, evidence-informed, and ethically sound endeavor.

Around the world, the simulation movement is growing but often without cohesion. In this issue of SIMZINE, we see examples that illustrate both the promise and the gaps.

In Jordan, as described by Dr. Jomana Alsulaiman, a national simulation conversation is underway. Deans, clinicians, and policymakers are working to align goals, resources, and infrastructure. But the challenges are familiar: fragmented curricula, underfunded centers, and inconsistent faculty training. Without a shared regulatory and professional foundation, momentum risks stalling.

A similar story emerges from Spain, where the **SESSEP highlights the uneven development of hospital-based simulation**. Despite strong evidence and political support, clinical simulation in hospitals remains inconsistently implemented. The call to action: clear institutional frameworks, sustainable funding, and formal integration into healthcare systems.

Meanwhile, a small hospital in Switzerland offers a model of how simulation can go beyond education. **The SIMPASS project, as told by Giovanni Rabito, has turned simulation into a lever for risk management and process improvement**. It's an example of simulation functioning as a mature, systemic tool, not just a pedagogical one.

Professionalism doesn't mean only high tech or high theory. The tools of simulation, in fact, are evolving rapidly. **Laura Gonzalez and Desiree Diaz explore how artificial intelligence is accelerating scenario design, making adaptive learning a reality**. But their message is sobering too: innovation without oversight can lead to chaos. If we don't set the rules of our own game, someone else [or some algorithm] will.

Even the emotional core of our work needs better structure. **Vincent Grant and Adam Cheng dig into the messy but essential role of emotions in debriefing**. Do we engage, or avoid? Their answer: we must be skilled enough to know when and how to navigate the emotional terrain. That, too, is professionalism.

Sometimes professionalism means climbing a mountain, literally! **In Tolmezzo, Italy, a team of clinicians runs monthly in-situ simulations in a small maternity unit**. Their project, featured in this issue, shows that even with limited resources, simulation can transform team culture, build trust, and improve response in critical situations. But none of it happens by accident. It requires structure, repetition, leadership.

Whether it's moulage innovation from Indiana, or insights from the **daily life of a simulation industry leader like Sil Fon Tang**, what ties all these stories together is the urgent need to *recognize simulation as a structured field*, not anymore as an informal craft.

Professionalizing healthcare simulation means building a culture of quality, not just among simulationists, but across institutions, systems, and sectors. It means integrating simulation into policy, certifying competencies, investing in infrastructure and creating strategic frameworks that support both education and clinical safety.

It's not enough to believe in simulation. Now we must build a discipline.

PLI

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SIM RESEARCH

Navigating the Emotional Landscape of Debriefing

In the nuanced realm of simulation-based education, one critical aspect that continues to spark debate is the role of emotions in debriefing. In particular, the question of whether facilitators should actively engage and manage emotions as they arise during a debriefing is often controversial. Emotions play a significant role in how learners reflect, process, and ultimately, improve their performance[1-3]. Knowing this, what are the ideal circumstances during which debriefers should actively manage learner emotions? This article briefly highlights some of the main perspectives and insights around this intriguing topic.

The Emotional Dichotomy in Debriefing

Emotions during debriefing can be perceived as a double-edged sword depending on the situation and how they are managed. On one hand, emotions are sometimes seen by facilitators as unnecessary distractions that could derail the focus from predefined objectives, performance metrics and important feedback. On the other hand, emotions can also be viewed as integral to the learning process, opening pathways to deeper understanding and self-reflection once the underlying drivers of the emotion response are identified.[1-2] The conversational journey taken to explore the emotion can unfreeze existing thought patterns and anchor new knowledge. Emotions, both positive and negative, undeniably influence memory, creativity, cognitive flexibility, attention, and problem-solving abilities. [1, 2, 4-6] By acknowledging and harnessing emotions, facilitators can lead more effective and impactful debriefing sessions. It becomes tricky, however, when emotions begin to interfere with participation and the overall flow of the session. Addressing emotions isn't just about validation; it's about ensuring that they don't hinder ongoing learning and reflection. Therefore, the question arises: should facilitators engage with emotions during debriefing, or should they focus solely on cognitive aspects?

The Case for Emotional Engagement

Consider situations where facilitators may be faced with confronting strong emotional reactions amongst one or more learners. For example, a learner upset with their performance might become disengaged, distracted, or upset, casting an emotional shadow over the session.[7] If not addressed, this can potentially disrupt the tone of conversation and dynamics of the entire group. By acknowledging, normalizing and exploring these emotions, facilitators can potentially transform the emotional barrier into a rich learning opportunity for the group. Addressing emotions can also prevent this from overshadowing the entire debriefing, potentially guiding the session into a constructive dialogue rather than an emotional standoff within a psychologically unsafe learning environment.

> ***acknowledging the emotion's presence without letting it monopolize the discussion.***

Sometimes, the emotional display isn't overtly negative; a learner might experience a release of stress post-simulation and burst into tears, not out of sadness, but relief. Assuming their emotion as negative could lead to mismanagement; so, facilitators must hold their assumptions loosely and keep an open mind when encountering emotions during debriefing. However, even in this circumstance, had the facilitator ignored the emotional response, they might have missed the chance to normalize the experience and clarify the emotions at play. Such examples underline the importance of discerning the type and nature of emotion before deciding on the appropriate course of action.

Emotions in debriefing are also not inherently binary. They don't have to be managed with an all-or-nothing approach. The ideal strategy typically lies somewhere in between, acknowledging the emotion's presence without letting it monopolize the discussion. Facilitators should aim to create a space where emotions are understood and addressed effectively when necessary and appropriate, while leveraging these conversations to help highlight the objectives of the session.[1, 2, 8-11] One crucial insight for facilitators is to remain adaptable. Emotions manifest differently across sessions, and strategies should be tailored to fit each unique situation. Simple acknowledgment and validation can often suffice for milder emotional displays, calming the room and allowing the session to progress without much interruption. In other situations, facilitators may have to use additional conversational strategies, such as normalization, paraphrasing, vulnerability and/or storytelling to help defuse the situation.[7,10]

Key Considerations in Managing Emotions

When deciding whether to address emotions during debriefing, facilitators should consider the following factors. We encourage facilitators to carefully reflect on the prevalence and nature of these factors to help guide if and when emotions should be managed during a debriefing.

1 Type of Emotion

Different emotions can have various impacts on the debriefing environment, so it is not simply the type of emotion being conveyed as to whether it should be managed further. Rather, the choice of whether to address the emotion during debriefing comes down to whether it seems deactivating or displeasing to the individual or the group.

2 Degree of Emotion:

The intensity and visibility of emotions can affect their impact on the session. Highly charged overt emotions may be more disruptive and therefore demand attention as opposed to subtle emotions that might be subconscious to learners. Differentiating between a passing emotion and one that disrupts the learning environment is crucial.

3 Impact on Debriefing:

Assess whether the emotion is hindering participation or discussion. If a learner's emotional state affects group dynamics or their ability to engage, it must be addressed. Mild emotions often require only acknowledgement, while intense emotions may necessitate a deeper exploration.

4 Prevalence Among Learners:

The number of participants affected by the emotion should be considered. A phenomenon experienced by many learners is more likely to require collective acknowledgement and further discussion.

5 Facilitator Confidence and Skill:

The facilitator's comfort and skill level in handling emotion greatly influences the outcome. The ability to manage emotions effectively can depend on both experience and comfort level with navigating complex emotional situations. Specific strategies for navigating difficult debriefing conversations can be helpful in these circumstances.[7] In situations beyond a facilitator's comfort zone, seeking assistance from more experienced colleagues or resources can provide guidance. Facilitators might also seek out faculty development opportunities to acquire and further hone these skills.

Building Emotional Intuition in Debriefing

The emotional component in debriefing isn't just about managing outbursts; it's about reading the undercurrents. Facilitators must develop an intuition to perceive when emotions are veering off course and might necessitate intervention.[1] For example, when addressing technical frustrations like a malfunctioning mannequin, simple acknowledgment and validation can defuse tension quickly. Once vented and understood, the session can proceed to focus on more influential factors affecting performance. Conversely, an undercurrent of frustration in the dialogue, tone and body language amongst team members may require a conversation that goes beyond simple acknowledgement and validation. Each situation is unique and requires a tailored approach to meet the specific needs of the learners. What works for one group may not necessarily work for others. Continuous learning and adaptation are vital...

References
Complete list of references on the web article.

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DID YOU KNOW...

Simulazione in Sanità Pubblica: Un Passo Decisivo verso la Qualità e la Sicurezza

https://doi.org/10.69079/SIMZINE.E25.N20.00078

La Simulazione in Sanità Pubblica, in linea con il Global Patient Safety Action Plan 2021-2030, è fondamentale per migliorare sicurezza, qualità e accesso alle cure globali. Progetti come il Padua Public Health Simulation Lab mostrano come la simulazione affronti sfide cruciali, dalla formazione sanitaria alla gestione delle emergenze, contribuendo a ridurre le disuguaglianze e a promuovere innovazione nei sistemi sanitari. Un approccio strategico per raggiungere gli obiettivi globali di salute e sicurezza.

Nel 1969, Neil Armstrong, posando il piede sulla Luna, pronunciò la celebre frase: "Un piccolo passo per l'uomo, un grande balzo per l'umanità". Come quel piccolo passo di Armstrong segnò un progresso storico per l'intera umanità, così una saggia integrazione della simulazione nel contesto della Sanità Pubblica potrebbe rappresentare un piccolo, ma significativo, passo culturale verso una maggiore sicurezza e qualità delle cure, anche per i Paesi a basso e medio reddito. Abbiamo osato una metafora troppo ambiziosa? Forse sì, forse no.

In un mondo dove 1 paziente su 10 nei Paesi ad alto reddito subisce un evento avverso durante l'assistenza sanitaria e dove nei Paesi a basso e medio reddito fino a 1 paziente su 4 va incontro a un danno, con 134 milioni di eventi avversi all'anno e circa 2,6 milioni di decessi, è evidente che la qualità delle cure rappresenti una sfida urgente. Quasi il 60% dei decessi nei Paesi a basso e medio reddito è attribuibile a cure di scarsa qualità o non sicure[1]. In un contesto sempre più tecnologicamente avanzato, è fondamentale garantire che strumenti come l'**intelligenza artificiale** e gli approcci educativi innovativi, come la realtà virtuale e il **metaverso**, non rimangano appannaggio esclusivo dei Paesi più ricchi, evitando così di alimentare ulteriormente le disuguaglianze sociali, educative e di accesso ai servizi di qualità.

La Simulazione in Sanità Pubblica e gli Obiettivi di Sviluppo Sostenibile

In questo scenario, la simulazione può rappresentare una risorsa efficace per affrontare sfide chiave della Sanità Pubblica, come la prevenzione delle infezioni correlate all'assistenza sanitaria, la gestione delle epidemie, delle emergenze, la **medicina dei disastri** e la *preparedness* in Sanità Pubblica. Essa può contribuire al raggiungimento degli Obiettivi di Sviluppo Sostenibile (SDG), tra cui: garantire salute e benessere per tutti (SDG 3), assicurare un'educazione inclusiva e di qualità (SDG 4) e ridurre le disuguaglianze all'interno e tra i Paesi (SDG 10)[2].

Siamo convinti che l'introduzione e l'adozione diffusa della simulazione in Sanità Pubblica possano favorire una trasformazione culturale e sistemica con ricadute a livello globale. E non siamo soli a crederlo. Nelle *Call to Action* del **Global Patient Safety Action Plan 2021-2030** della World Health Organization (WHO), vi è una chiara esortazione a implementare

programmi basati sulla simulazione, rivolta a tutti gli stakeholder: governi, servizi sanitari e mondo accademico.

Sette aspetti chiave della simulazione nella Sanità Pubblica

Negli ultimi anni, la simulazione ha dimostrato un enorme potenziale in ambito clinico, ma sta emergendo anche come strumento chiave nella Sanità Pubblica, grazie a una fiorente proliferazione di applicazioni innovative. Oltre a migliorare la preparazione dei professionisti sanitari, questa metodologia di didattica e ricerca innovativa sta contribuendo a rafforzare l'efficienza e la sicurezza dei sistemi sanitari, aiutando a ridurre le disuguaglianze nell'accesso a servizi di qualità. A partire da questa prospettiva, recentemente abbiamo pubblicato su *Frontiers in Public Health* l'articolo *Shaping the future of healthcare: improving quality and safety through integrating simulation into Public Health education* che evidenzia la necessità e l'urgenza dell'integrazione della simulazione in Sanità Pubblica e condivide una proposta concreta in questo senso[3]. A questo scopo, abbiamo messo in luce sette aspetti della simulazione che riteniamo particolarmente rilevanti:

1. **Educazione e miglioramento della qualità:** standardizza la formazione sanitaria, migliorando così l'assistenza e l'equità nell'accesso a servizi di qualità.
2. **Risparmio economico:** riduce i costi associati agli errori sanitari e alle inefficienze del sistema sanitario.
3. **Competenze non tecniche e fattori umani:** potenzia leadership, comunicazione e lavoro di squadra.
4. **Miglioramento degli esiti clinici:** riduce gli eventi avversi e migliora la qualità complessiva delle cure.
5. **Coinvolgimento dei pazienti e dei caregiver:** promuove una maggiore partecipazione e consapevolezza.
6. **Opportunità di ricerca e innovazione:** offre un ambiente sicuro per sperimentare nuove tecnologie e metodologie.
7. **Approccio etico e apprendimento sicuro:** promuove un apprendimento che non compromette la sicurezza di pazienti e operatori.

Il *Padua Public Health Simulation Lab*: un piccolo passo verso un grande cambiamento

Per costruire questa visione, è stato avviato il progetto *Padua Public Health Simulation Lab* (PPHSL), un'iniziativa nata dalla collaborazione tra accademici, professionisti sanitari e studenti dell'Ateneo di Padova nel contesto della Scuola di Specializzazione in Igiene e Medicina Preventiva , deicorsi di laurea di medicina e delle professioni sanitarie. Questo progetto risponde all'appello del Global Patient Safety Action Plan 2021-2030 della WHO e si allinea con le *Linee di indirizzo sullo sviluppo della simulazione in sanità in Italia*, pubblicate dal Ministero della Salute nel luglio 2022[4].

L'obiettivo principale del PPHSL è promuovere l'integrazione della simulazione nei percorsi di Sanità Pubblica, favorendo lo sviluppo di competenze sia tecniche che non-tecniche, come leadership, comunicazione efficace e lavoro di squadra. Il target del progetto comprende professionisti della sanità in fase di formazione di base e post-lauream, con un focus specifico su temi quali infezioni correlate alle pratiche assistenziali e antimicrobico resistenza; igiene delle mani; risk management; esitanza vaccinale; emergenze sanitarie.

Secondo Sir Donald Acheson la Public Health è «la scienza e l'arte di promuovere la salute, prevenire le malattie e prolungare la vita»[5]. Alla luce di questa definizione, considerare la simulazione come una risorsa strategica indispensabile per la Sanità Pubblica rappresenta solo una visione ambiziosa o un'opportunità che sarebbe insensato non cogliere?

Per saperne di più:

Baldovin T, Bassan F, Bertoncello C, Buja A, Cocchio S, Fonzo M and Baldo V (2024) Shaping the future of healthcare: improving quality and safety through integrating simulation into Public Health education. Front. Public Health 12:1446708. doi: 10.3389/fpubh.2024.14467081988 Sep 1;102(5):431–7.

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Dr. Francesco Bassan:
"Una sanità più sicura ed equa potrà essere raggiunta se la Sanità Pubblica adotterà la simulazione come strumento integrato per il raggiungimento degli obiettivi di qualità e sicurezza perseguiti dalla Clinical Governance. La simulazione, a sua volta, avrà un impatto più incisivo se saprà incorporare la visione e le competenze della Sanità Pubblica, rispondendo così in modo adeguato alle sfide globali."

Prof. Vincenzo Baldo:
"Stiamo favorendo l'adozione di metodologie didattiche innovative, come l'uso della Realtà Virtuale Immersiva (RVI), per migliorare l'esperienza formativa degli studenti. Queste tecnologie permettono di creare simulazioni realistiche e interattive, facilitando l'apprendimento pratico e teorico. L'obiettivo è potenziare le competenze dei futuri professionisti, rendendo l'insegnamento più coinvolgente ed efficace, e preparandoli ad affrontare le sfide del mondo reale con strumenti all'avanguardia."

Prof.ssa Tatjana Baldovin:
"Nel campo della salute pubblica, stiamo esplorando una metodologia già consolidata in ambito clinico, mirando a innovare la didattica e la ricerca. L' obiettivo è migliorare la formazione per elevare la qualità dell'assistenza, aumentare la sicurezza dei pazienti e garantire un accesso equo a servizi sanitari di alta qualità"

Read in your language

ABOUT SESSEP

Simulación clínica en hospitales españoles: el relato de un encuentro

https://doi.org/10.69079/SIMZINE.E25.N20.00077

La simulación clínica en hospitales españoles sigue avanzando, aunque de forma desigual. En el XI Congreso de SESSEP se identificaron tres pilares clave para su consolidación: normativa institucional, estructura funcional y recursos adecuados. Este artículo resume los hallazgos del encuentro y lanza una llamada a la acción para integrar la simulación como estándar formativo, esencial para mejorar la seguridad del paciente y la calidad asistencial

La simulación clínica es una herramienta reconocida por mejorar la formación de profesionales y la seguridad del paciente. Sin embargo, aunque existen estudios sobre la consolidación de enseñanza con simulación clínica en universidades, estamos muy lejos de conocer el nivel de desarrollo real de esta, más lejos aun cuando hablamos de simulación en hospitales. La simulación en entornos clínicos, no avanza al ritmo deseado a pesar de su eficacia demostrada en la seguridad del paciente y para la formación de profesionales en vías de especialización y equipos clínicos e interdisciplinares, y de las enérgicas recomendaciones ministeriales a favor del uso de la simulación clínica.

En el XI Congreso de la Sociedad Española de Simulación Clínica y Seguridad del Paciente (SESSEP) que tuvo lugar en Oviedo en abril del 2024, se convocó a expertos clínicos asistenciales para analizar el estado actual de la simulación en hospitales y los desafíos a superar

El análisis de la jornada

Previo al congreso, se distribuyó una encuesta a miembros de SESSEP para obtener datos sobre la simulación en sus centros. Durante la sesión, moderada por dos expertos, se utilizaron los principios del doble diamante para organizar los debates. Los participantes se agruparon según el nivel de desarrollo de la simulación en sus hospitales: *novel, intermedio* y *avanzado*. La discusión fue grabada, previo consentimiento de los asistentes, y los retos agrupados según la experiencia de cada grupo.

De los 38 encuestados, el 65% empleaba simulación en diversos servicios hospitalarios. El 73,6% utilizaba la simulación para la formación de residentes y el 78,9% para la formación continuada. En la sesión participaron 28 profesionales, de los cuales el 42,9% representaba hospitales con un nivel *novel* de simulación, el 28,56% con un nivel *intermedio* y el 28,56% con un nivel *avanzado*.

La detección de necesidades en hospitales

Los hospitales con un nivel de simulación *novel* identificaron la necesidad de contar con recursos y espacios adecuados, así como de definir el lugar de la simulación dentro de la estructura organizativa. En el nivel *intermedio*, se destacó la falta de programas formativos consistentes y la necesidad de un responsable dedicado. Los centros *avanzados* subrayaron la importancia de la investigación en simulación y la colaboración con otros hospitales e industrias tecnológicas, así como amparar la simulación clínica bajo una estructura basada en los estándares de calidad como por ejemplo la INACLS o ASPIH

Detectando necesidades para avanzar:

Tras la unificación de los retos, fueron organizados en tres pilares para el desarrollo de la simulación en hospitales:

A) Normativa ministerial y apoyo institucional: A pesar de su reconocida eficacia, la simulación aún carece de un respaldo institucional consistente. Es crucial que las autoridades sanitarias establezcan normativas claras que impulsen la integración de la simulación en los programas de formación y proporcionen los recursos necesarios para su desarrollo. Los hospitales necesitan apoyo para crear unidades de simulación funcionales y sostenibles.

B) Estructura funcional definida: Los programas de simulación deben tener una estructura funcio-

nal dentro de los hospitales, ya sea como unidades independientes o formando parte del organigrama, como grupos de trabajo, etc., que permita desarrollar su actividad de forma coordinada, facilitando programas sostenibles y transversales a todos los profesionales de la institución.

C) Recursos: La falta de personal formado, técnicos especializados y espacios dedicados sigue siendo un obstáculo importante. Los hospitales deben contar con los medios necesarios para que la simulación sea una herramienta efectiva y accesible.

Conclusiones y transferencia a nuestra realidad. Llamada a la acción.

Todos los participantes, aunque conscientes del gran recorrido que todavía tiene la simulación clínica en los hospitales, manifiestan la necesidad de la creación de un grupo de trabajo de simulación hospitalaria para crecer conjuntamente en su consolidación y conseguir avanzar en la seguridad del paciente. Este documento sirve de guía para posicionar el nivel en el que se encuentra la simulación en cada uno de los hospitales y los retos futuros que le quedan por avanzar.

Pero esto no es un hecho aislado en España, SESSEP ha estado presente en la reciente firma del acuerdo de Consenso Global sobre Simulación Sanitaria liderado por SSH y SESAM , donde se ha aunado el apoyo generalizado a la simulación clínica por distintas sociedades y resalta...

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Referencias
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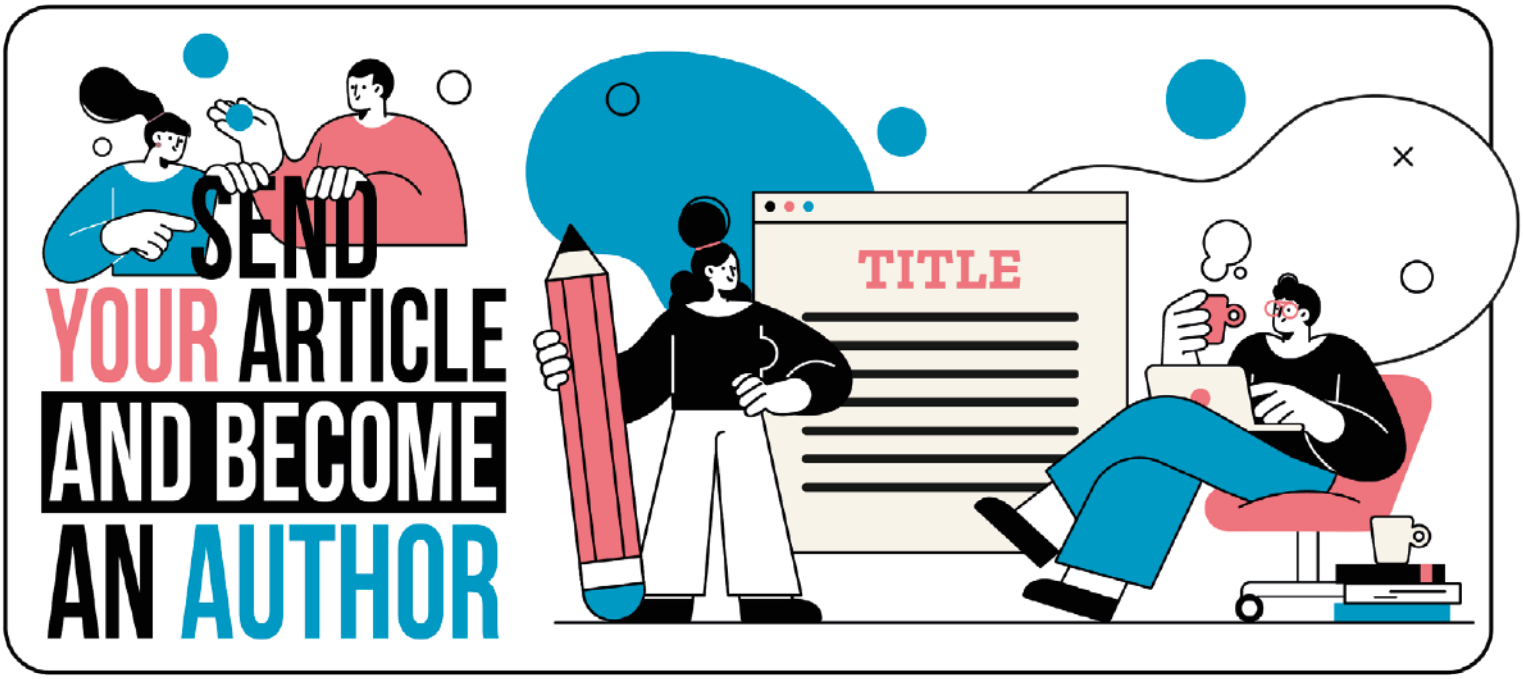

Read in your language

SIM CORNER

Smarter Interfaces, Smarter Healthcare Students: Dashboards for AI-Based Education

https://doi.org/10.69079/SIMZINE.E25.N20.00072

What if your medical mentor never slept, tracked your every learning move, and knew exactly how to help you improve, instantly? As artificial intelligence (AI) rapidly integrates into medical education, this vision is becoming a reality. But without intuitive dashboards and user-friendly interfaces, even the smartest AI risks becoming just another complicated tool. The key to unlocking AI's full potential in training future healthcare providers lies not just in the algorithms, but in the design that connects them to the people they aim to support.

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The rapid integration of artificial intelligence (AI) into medical education is transforming how students learn, practice, and master essential skills. Yet, for AI tools to deliver meaningful results, they need to be supported by intuitive, well-designed user interfaces (UI) and dashboards that bring clarity to complexity. Dashboards in AI systems function much like the cockpit of an airplane: they provide real-time, actionable data to help students stay on course while managing the inevitable turbulence of medical training.

AI's relevance in medical education is immense. These systems deliver personalized mentoring by analyzing student performance, diagnosing knowledge gaps, and offering decision support tailored to an individual's learning path. Imagine an AI-powered dashboard that doesn't just identify a student's struggles with patient histories but suggests a precise module or resource to address it—like a mentor who understands every learner uniquely. For this vision to be realized, the interfaces must be intuitive, clear, and built to integrate seamlessly into existing learning modules. Without effective UIs, even the most advanced AI tools risk falling flat.

As noted by Epstein et al. (2020), the aggregation and display of personalized metrics through dashboards can significantly enhance both clinical care and medical training. Epstein et al. highlight that real-time performance analytics, trend visualization, and benchmark comparisons improve learning outcomes by providing residents with clear, actionable insights. Clinical dashboards have been successfully implemented in residency programs, demonstrating increased engagement and more precise self-assessment among medical trainees.

At the Artificial Intelligence Division in Simulation, Education, and Training (AIDSET), we are building on these findings by exploring how these systems can transform learning outcomes by merging technical excellence with human-centered design.

A dashboard isn't just a tool: it's a conversation between humans and technology.

When built well, it helps users think better, learn faster, and take the next step with confidence.

Fig.1

The Role of Dashboards and User Interfaces in AI Mentoring Systems

Dashboards centralize data visualization and provide a bridge between complex AI insights and actionable information. For students, they track real-time progress and suggest tailored learning paths. A dashboard might show trends in diagnostic accuracy, flag areas for improvement, or recommend practice modules based on performance. For educators, dashboards reveal class-wide trends and pinpoint individual learning needs, giving them the tools to intervene in a meaningful way. Administrators rely on dashboards to analyze program outcomes and identify opportunities for improvement. Developers can also use them to refine systems over time. *[Fig.1]*

Well-designed dashboards come equipped with key features that support their role as intelligent mentors. Progress tracking highlights student achievements and skill assessments identify their strengths and weaknesses. Personalized learning paths guide students to appropriate content, keeping them on an upward trajectory. Integrating case studies and simulations into dashboards further enhances their practical utility.

For example, an AI-driven dashboard might analyze a student's performance in diagnosing cardiac conditions, offer targeted feedback, and recommend new case studies for practice, transforming abstract feedback into actionable next steps. The importance of easily accessible and interpretable performance data is emphasized in the literature, as it constitutes critical feedback that facilitates informed self-assessment and learning planning (Yarahuan et al., 2022). Usability studies on dashboards used by pediatric residents reveal high engagement levels when interfaces are designed with automation and intuitive navigation. Yarahuan et al. reported improved efficiency and reduced cognitive overload when dashboards were optimized based on user feedback.

Challenges in Creating Effective UI for AI Mentoring

Designing dashboards that meet the needs of diverse users remains a major challenge. Novice learners require simplified visuals and structured pathways, while advanced students seek in-depth analytics and flexibility. Balancing these needs requires a user-centered approach, ensuring that dashboards are both intuitive and functional. Cognitive overload is another hurdle. Medical education generates vast amounts of data, and without careful design, dashboards risk overwhelming users instead of supporting them. The goal is to distill complexity into clarity, to present data in a way that makes learning actionable, not burdensome.

Personalization plays a pivotal role in effective UI design. Each learner has unique goals and challenges, and dashboards must reflect this diversity. For instance, a student struggling with patient interview techniques might receive recommendations for targeted clinical history modules, while another excelling in diagnostics could be guided toward advanced cases. The dashboard must evolve with the learner, tailoring its insights and recommendations as progress is made. This adaptability is crucial for fostering a culture of reflective practice among medical students (Boscardin et al., 2017).

Balancing simplicity and depth is crucial. Boscardin et al. propose "twelve tips" for dashboard development, emphasizing usability, adaptability, and learner engagement. These insights support the need for user-centered design in medical AI dashboards. Dashboards should facilitate self-regulated learning by providing structured feedback, goal-setting tools, and reflection prompts. This ensures that students continuously refine their skills and learning strategies based on performance metrics.

Another challenge lies in interoperability. AI mentoring systems do not exist in a vacuum; they must integrate seamlessly with electronic health records (EHR), simulation tools, and other educational platforms. Interrupting workflows with siloed tools can alienate users, whereas interconnected systems enhance productivity and ease of use. Ethical considerations, including data privacy and bias mitigation, must also be addressed. Sensitive medical data requires protection under frameworks like HIPAA, and AI systems must be continuously tested to ensure fairness and reliability in their recommendations.

Visualization of AI insights is essential for ensuring that dashboards are accessible to non-technical users. AI algorithms often produce complex outputs, but a well-crafted dashboard translates these results into clear, digestible formats. For example, a comparative graph showing diagnostic performance against AI benchmarks can help students see their standing and offer a clear path for improvement. To make this possible, real-time performance is critical. Dashboards must process data instantaneously to provide timely feedback and ensure that learning remains fluid and uninterrupted. *[Fig.2]*...

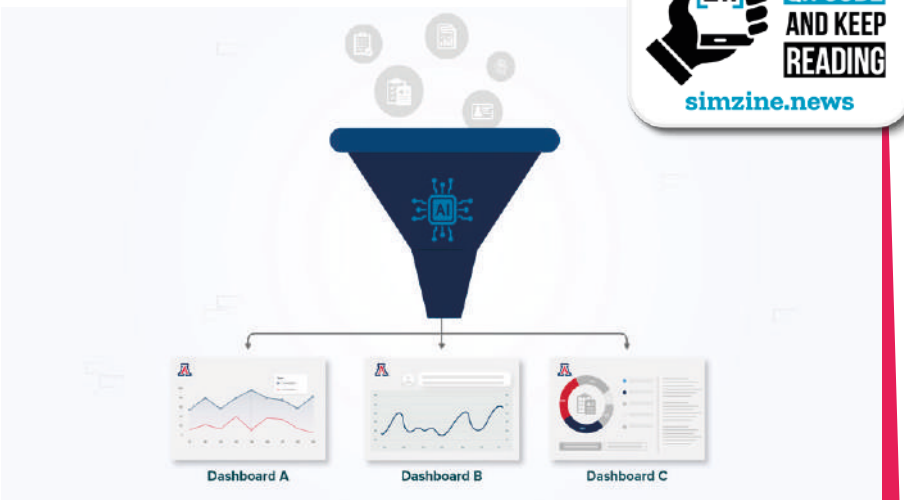

Fig.2

Read in your language

SIM GARAGE

EXCLUSIVE
PARTNERSHIP with
SIMGHOSTS

Moulage Tattoos for Simulation Training in 9 Steps

This step-by-step guide walks you through how to create custom moulage tattoos for healthcare simulation. Using simple materials and digital tools, you can quickly produce realistic, reusable wounds that enhance learner immersion and save time during scenario setup, ideal for simulation educators and technologists

Creating realistic, reusable wounds or injuries for simulation can be time-consuming and messy—but not anymore. Moulage tattoos offer a fast, safe, and visually convincing solution that's perfect for busy simulation centers. Follow this guide to make your own custom tattoos that are durable, skin-safe, and easy to apply.

Why Use Moulage Tattoos?

Creating realistic, reusable wounds oIn healthcare simulation, immersion is essential. Learners absorb and retain more information when they engage with realistic environments. Moulage tattoos help reduce the need for imagination by providing high-quality visual cues that look real and consistent across scenarios. Best of all, they're safe to use on expensive manikins and save precious prep time.

MATERIALS YOU'LL NEED

- TATTOO PAPER
- TWO TEGADERMS PER TATTOO (CHOOSE SIZE APPROPRIATE TO YOUR IMAGE)
- INKJET PRINTER
- SCISSORS
- WASHCLOTH
- COMPUTER WITH INTERNET ACCESS
- WORD PROCESSOR (E.G., MICROSOFT WORD)

01 STEP

Prepare Your Workspace

Start by setting up a clean, open area where you can work without distractions. Lay out all your materials before you begin.

SCAN THE QR CODE TO GO STRAIGHT TO VIEW STEP-BY-STEP IMAGES WHICH GUIDE YOU THROUGH THE PROCESS

02 STEP

Find the Right Image

Search for a wound, scar, or injury image that fits your scenario (e.g., ulcerated hand, tire tread mark). Google Images is a great place to start.

Pro Tip: Use Google's "Tools" option to filter by Color > Transparent to find images with actual transparent backgrounds. Be cautious, some images may look transparent due to a checkered background, but aren't.

03 STEP

Edit and Save Your Image

Paste the selected images into a Word document to resize, crop, or transpose as needed. This also helps you save and organize your tattoo designs for future use. Try to maximize space by placing multiple images on one page to save paper and ink.

04 STEP

Print Your Tattoo

Follow the instructions that come with your tattoo paper. Usually:

- Use the bypass tray or tray 1 on your printer
- Place the glossy side of the tattoo paper facing up
- Print in high quality or photo mode if available.

Every printer is different, so test a sample if needed.

05 STEP

Cut the Tattoo

Use scissors to carefully trim around the wound image. Make sure the size fits well within the Tegaderm you're using.

06 STEP

Prepare Your Tegaderm Layers

You'll need **two Tegaderms** per tattoo:

- **Tegaderm 1**: Peel off the backing (the sticky side will be used).
- **Tegaderm 2**: Peel off the front plastic layer only (leave the sticky side untouched).

07 STEP

Apply the Tattoo to the First Tegaderm

Place the printed tattoo **face down** onto the sticky side of Tegaderm 1.

08 STEP

Transfer the Tattoo

Take a damp washcloth and saturate the back of the tattoo paper. Gently test-lift a corner. Once it's fully saturated, the paper will easily separate, leaving the image transferred onto the Tegaderm.

09 STEP

Seal the Tattoo

Now place Tegaderm 2 (the one with the plastic front removed) over the tattooed surface. Press gently to seal the image between the two Tegaderm layers.

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Read in your language

DID YOU KNOW...

From knowledge to action, one breath at a time!

https://doi.org/10.69079/SIMZINE.C25.N20.00070

A groundbreaking study published in *The New England Journal of Medicine* reveals that simulation-based training and quality improvement programs can significantly reduce perinatal mortality in low-resource settings. The study involved over 125,000 individual training sessions and 1,300 group simulations, impacting more than 280,000 mothers and newborns. This large-scale intervention led to an 18% reduction in perinatal deaths, offering a scalable model for global maternal and neonatal care.

Every day, thousands of newborns take their first breath but in many parts of the world, that breath is never guaranteed. Birth-related complications remain one of the leading causes of infant mortality, particularly in low-resource settings. However, a groundbreaking study published in the *New England Journal of Medicine (NEJM)* suggests a powerful solution: simulation-based training and quality improvement programs that equip healthcare providers with life-saving skills before emergencies unfold.

A Game-Changer in Perinatal Care

The Safer Births Bundle of Care, a structured program designed to enhance perinatal care, was recently tested in a three-year stepped-wedge cluster-randomized study across 30 high-burden healthcare facilities in Tanzania. This large-scale initiative combined hands-on simulation training, real-time clinical data utilization, and the deployment of innovative neonatal care tools. The goal? To improve perinatal outcomes and provide a sustainable, scalable model for healthcare systems worldwide.

The success of the Safer Births Bundle of Care program was rooted in robust collaborations among various organizations. Local Hospital, Ministry of Health, Local Government and Regional Authority, professional bodies such as the Midwifery Association and the Pediatric Association and UNICEF in Tanzania, played pivotal roles in the program's implementation. International support from the SAFER Simulation Center at Stavanger University Hospital and Laerdal Global Health in Norway further strengthened these efforts.

Numbers and Key Findings: Reducing Newborn Deaths

The intervention was massive: over 125,000 individual training sessions and about 1300 group simulations led by a facilitator were recorded. The study involved 281,165 mothers and 277,734 newborns across five regions in Tanzania. Researchers observed a striking 18% reduction in perinatal mortality following the program's implementation. The estimated incidence of perinatal death dropped from 15.3 to 12.5 deaths per 1,000 births. Notably, while the incidence of intrapartum stillbirths remained largely unchanged (8.6 deaths per 1,000 births at baseline vs. 8.7 per 1,000 post-intervention), the number of neonatal deaths within the first 24

hours plummeted from 6.4 to 3.9 per 1,000 births, highlighting the critical role of timely and effective newborn resuscitation.

Why This Study Matters

The publication of this research in *NEJM*, recognized as the world's leading medical journal, underscores the growing recognition of simulation-based training as an essential component of modern healthcare. By demonstrating that structured interventions can dramatically improve newborn survival, this study sets a precedent for how maternal and neonatal health programs should be designed and implemented.

A key element of the Safer Births Bundle of Care is its reliance on simulation-based learning. Training programs like Helping Babies Breathe and innovative tools such as the NeoNatalie Live simulator allowed healthcare workers to practice resuscitation techniques repeatedly, ensuring they were fully prepared when real-life emergencies arose. This hands-on approach proved crucial in reducing neonatal deaths within the first 24 hours, a period when newborns are most vulnerable. And the simulation can be effectively implemented even when time and resources are limited, as already described in another article.

Beyond the Numbers: Empowering Healthcare Providers

A qualitative study published in 2023 involving interviews with healthcare providers and managers at two thirds of the involved facilities revealed that the implementation of the Safer Births Bundle of Care had profound effects beyond measurable outcomes. Midwives reported increased confidence in recognizing emergencies, such as non-breathing newborns and excessive postpartum bleeding, and in initiating effective actions while awaiting a doctor's arrival. Additionally, providers noted a reduction in the "blame and shame" culture, leading to improved self-confidence and a safer working environment.

Global Implications

The success of the Safer Births Bundle of Care has garnered global attention, highlighting its potential to transform maternal and newborn health. The program's remarkable results, reducing maternal deaths by up to 50% and neonatal deaths by up to 45% in areas of implementation, demonstrate its effectiveness and scalability. In 2020, the program received funding from the Global Financing Facility (a part of the World Bank) to scale up to 30 hospitals across five regions in Tanzania, covering approximately 500,000 births per year. Based on these promising results, the Safer Births Bundle of Care was awarded an additional $8.5 million to further extend its reach in Tanzania.

This comprehensive approach, combining simulation-based training with continuous quality improvement strategies, provides a sustainable framework for reducing birth-related mortality, offering a model for other low-resource settings aiming to improve maternal and neonatal health outcomes.

Conclusion

This landmark study reaffirms that investing in structured, evidence-based training programs can lead to real, measurable improvements in perinatal survival. The combination of frequent hands-on training, clinical data integration, and innovative technology is not just an academic exercise, it's a tangible, life-saving intervention. As global health initiatives strive to reduce birth-related mortality, the Safer Births Bundle of Care provides a model for how we can turn knowledge into action, one breath at a time.

For those eager to explore the study in greater detail, the full text is available at NEJM.

WATCH THE VIDEO


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Hosted by Fouad Marhar
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music

SIMFACE

From Simulation to the Stars: Adam Cheng

Read in your language

https://doi.org/10.69079/SIMZINE.E25.N20.00075

In the dynamic arena of education in healthcare, Dr. Adam Cheng stands out as a driving force, seamlessly integrating pediatric care with innovative educational strategies. His co-edited work, *Comprehensive Healthcare Simulation: Pediatrics*, has become an essential reference for professionals and scholars alike. Beyond his editorial contributions, Dr. Cheng has an extensive research portfolio, with numerous publications that have significantly influenced simulation practices. While his professional life revolves around improving patient safety and medical learning, his passions extend well beyond the clinical sphere, from experimenting with traditional Korean recipes in his kitchen to dreaming of life among the stars as an astronaut. This blend of scientific rigor, creativity, and curiosity defines Dr. Cheng's approach to both medicine and mentorship, making him a uniquely inspiring figure in the field.

Read our interview with him to find out more on simzine.news

Read in your language

DID YOU KNOW...

La simulazione al servizio del Rischio Clinico

https://doi.org/10.69079/SIMZINE.E25.N20.00080

L'Ospedale Regionale di Bellinzona e Valli ha integrato la simulazione in situ nella gestione del rischio clinico, trasformandola da strumento formativo a leva strategica per il miglioramento dei processi. Con il progetto SIMPASS, nato dalla collaborazione con il Centro cantonale di simulazione, l'ORBV ha adottato un approccio proattivo alla sicurezza, basato su debriefing strutturati, analisi dei fattori contributivi e costruzione della resilienza. Un'esperienza concreta che dimostra come la simulazione possa diventare un motore di apprendimento sistemico e un pilastro della cultura della sicurezza in sanità.

Dall'errore umano alla resilienza del sistema

Secondo il famoso psicologo James Reason, l'errore umano è universale e inevitabile; può essere ridotto ma mai eliminato. Tuttavia, gli errori offrono anche preziose opportunità di apprendimento per evitare che si ripetano a livello individuale, di squadra e di sistema. Le organizzazioni sanitarie devono creare condizioni di lavoro ottimali e attuare misure per ridurre la probabilità di errori. Tradizionalmente, la gestione del rischio si è concentrata sulla standardizzazione per ridurre la variabilità umana, partendo dal presupposto che la stretta aderenza alle procedure garantisca la sicurezza. Tuttavia, l'approccio Safety-II (Hollnagel) riconosce che l'adattabilità è fondamentale per la resilienza del sistema. La simulazione in sito offre agli operatori sanitari un ambiente sicuro per affinare le loro competenze tecniche e non, promuovendo la comunicazione, la leadership e il lavoro di squadra direttamente nel loro ambiente clinico, migliorando la sicurezza del paziente e la qualità dell'assistenza. La sicurezza del paziente trae quindi un enorme beneficio dai programmi di simulazione, e ormai si parla di simulazione come elemento integrante del clinical risk management. Un sistema sanitario dimostra un'elevata maturità nella gestione del rischio quando la simulazione non viene utilizzata solo per formare i singoli operatori, ma anche per testare i sistemi, individuare vulnerabilità nei processi e prevenire eventi avversi prima che si verifichino su pazienti reali.

Simulazione e rischio clinico: l'integrazione all'Ospedale Regionale di Bellinzona e Valli

All'Ospedale Regionale di Bellinzona e Valli (ORBV) tutto è iniziato nel 2021, quando si è cominciato a combinare, con la collaborazione del Centro cantonale di simulazione (CeSi), le pratiche di simulazione in situ con le attività di risk management del Servizio Qualità e Sicurezza dei Pazienti. Un percorso di trasformazione culturale e metodologica che ha portato a integrare progressivamente la simulazione in situ con le metodologie di gestione del rischio clinico e organizzativo. Un approccio con cui si voleva anticipare le criticità e rafforzare la sicurezza psicologica nei team.

L'ORBV rappresenta una struttura strategica all'interno dell'Ente Ospedaliero Cantonale (EOC), la rete ospedaliera pubblica multi-sito del Canton Ticino, in Svizzera, che dispone complessivamente di circa 1.000 posti letto. L'ORBV garantisce un'ampia gamma di servizi, che includono le cure d'urgenza, l'assistenza ospedaliera generale e prestazioni specialistiche a livello regionale e cantonale. La struttura ospita centri di riferimento di rilievo nazionale, quali l'Istituto Oncologico della Svizzera Italiana (IOSI) e l'Istituto Pediatrico della Svizzera Italiana (IPSI). Nel corso del 2024, l'ospedale ha gestito 12.639 ricoveri, 265.902 consulti ambulatoriali ed effettuato 8.089 interventi chirurgici. Con un organico di 1.830 collaboratori, tra cui 430 medici e 816 infermieri, l'ORBV si conferma un pilastro fondamentale per l'erogazione di cure di alta qualità e per la presa in carico della popolazione del territorio.

Il percorso dell'ORBV non è stato lineare ma ricco, nato sul campo, dalla sperimentazione di vari approcci e dall'ascolto dei bisogni reali dei team, e che oggi si concretizza in un approccio integrato della simulazione al servizio delle attività di risk management per migliorare i processi clinici e organizzativi.

La nascita di SIMPASS per la sicurezza del paziente

Il punto di partenza è stata la costituzione del gruppo SIMPASS (Simulation for Patient Safety), una rete interprofessionale composta da me-

dici, infermieri, esperti di formazione degli adulti e coordinata dal Servizio Qualità e sicurezza dei pazienti. In particolare, volevamo andare a caccia dell'errore prima che questo potesse causare conseguenze sui pazienti, trasformando situazioni critiche reali in opportunità di apprendimento e miglioramento del nostro sistema ospedaliero.

Fin da subito ci siamo avvalsi della collaborazione con il Centro di Simulazione (CeSi) del CPS di Lugano, referente per tutto il Canton Ticino della simulazione in sanità. Con loro abbiamo cercato di uniformare il gruppo sulle metodologie di progettazione delle simulazioni in situ per ben adattarle ai contesti clinici reali.

Nessuno di noi voleva improvvisare: dovevamo imparare a costruire scenari realistici e rilevanti per il nostro contesto ospedaliero, coinvolgendo i professionisti direttamente nei reparti dove lavorano ogni giorno. Abbiamo quindi iniziato selezionando eventi avversi reali e quasi-errori (near miss) accaduti in ospedale come base per i nostri scenari di simulazione. Questo approccio ci assicurava che ogni esercizio non fosse solo un addestramento astratto, ma un vero stress test del sistema sui punti deboli concreti identificati da un'analisi preliminare dei rischi. (Deutsch et al., 2024)

Per noi, la simulazione è diventata progressivamente uno strumento operativo e sistemico, capace non solo di allenare le competenze individuali, ma di attivare meccanismi collettivi di osservazione, riflessione e adattamento nei contesti reali in cui si lavora ogni giorno. Il nostro programma annuale di simulazione oggi coinvolge oltre 400 professionisti e tutti i reparti, integrando in modo strutturale la simulazione con la gestione dei rischi.

Dal training ai tool di risk management

All'inizio le nostre simulazioni erano focalizzate sugli aspetti clinici e formativi. Ben presto ci siamo resi conto che, per fare un salto di qualità, dovevamo inserire strumenti strutturati di analisi del rischio nel ciclo di progettazione. Abbiamo quindi iniziato a mappare i processi clinici di ogni scenario con metodi come le tabelle SIPOC e i diagrammi di flusso (swimlane), per visualizzare chiaramente fasi e interazioni critiche. Successivamente tecniche come HAZOP, BowTie e Fault Tree Analysis. Ognuno di questi metodi è stato testato e integrato, contribuendo a rafforzare l'approccio preventivo della simulazione.

Dopo ogni simulazione svolgiamo un debriefing strutturato e raccogliamo "a caldo" le osservazioni del personale, poiché è in quel momento che spesso emergono i gap di sistema nascosti. Parallelamente, ci siamo concentrati sulla cultura organizzativa: volevamo che ogni partecipante si sentisse al sicuro nell'esprimere dubbi ed errori durante il debriefing, senza timore di colpevolizzazioni. Col tempo abbiamo osservato una crescita tangibile della sicurezza psicologica nei team, con le persone che parlavano apertamente di ciò che andava storto e di ciò che andava bene, trattando l'errore non più come colpa individuale ma come opportunità di miglioramento. Questo cambiamento di atteggiamento è un elemento chiave di una solida cultura della sicurezza supportata da un alto livello di fiducia e comunicazione aperta. L'esperienza dell'ORBV conferma quanto emerge anche dalla letteratura sui contesti ad alta affidabilità (Kingston et al., 2022): per rafforzare la sicurezza dei pazienti è essenziale coltivare una cultura di apprendimento continuo fondata sulla sicurezza psicologica. Per questo motivo abbiamo investito in modo strutturato nel debriefing come strumento di apprendimento riflessivo e abbiamo coinvolto attivamente la leadership clinica e organizzativa fin dalle prime fasi. La simulazione in situ è stata formalmente integrata nel Piano annuale aziendale per la qualità e la sicurezza dei pazienti, consolidando il suo ruolo non solo...

> ***Per noi, la simulazione è diventata progressivamente uno strumento operativo e sistemico,...***

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...

Lista completa de referencias en el artículo web

Read in your language

DID YOU KNOW...

Simulation-Based Medical Education in Jordan: A National Conversation Begins

https://doi.org/10.69079/SIMZINE.E25.N20.00076

Medical simulation in Jordan is gaining momentum as institutions confront challenges and pursue innovation. At ICSME 2025, Yarmouk University facilitated a vital national conversation among public and private medical schools, fostering shared strategies for simulation-based education. From infrastructure upgrades to cross-institutional collaboration, the conference reflected a united commitment to experiential learning.

FOR SIMZINE IN PAPER

Simulation-based education (SBE) is no longer a luxury, it is a critical pillar of modern medical training. Recognizing its growing global importance, Yarmouk University Faculty of Medicine, in Northern Jordan, took the initiative to host the International Conference on Simulation in Medical Education (ICSME 2025), under the patronage of His Excellency Dr. Yaseen Al-Husban, Chairman of the Health Committee in the Senate.

ICSME 2025 extended beyond an academic gathering: it was a platform for open dialogue, collaboration, and a shared national, regional, and global vision. A distinguished audience representing diverse health sectors across Jordan, including academicians from healthcare educational institutions and major healthcare providers such as Jordan Ministry of Health, Royal Medical Services, and the national health policy-making bodies. The latter were represented by members of the health committees in both the parliament and the senate. This gathering mirrors the growing recognition of simulation's role not only in education but also in healthcare system strengthening.

A highlight of the event was the panel discussion that featured the deans of Medicine of five public medical faculties and one private institution. The deans showed distinguished enthusiasm and generosity in sharing their experiences, expectations, and their vision on the road map for SBE. Their participation attested not only institutional commitment, but also a shared belief in the importance of elevating medical education standards across Jordan. This spirit of collaboration, grounded in a common vision for simulation as a transformative tool, has set the tone for one of the most dynamic sessions of the conference.

Jordan's Simulation Education Landscape:

Key Findings from a National Survey

An institutional readiness assessment using the Simulation Culture Organizational Readiness Survey (SCORS) tool showed a moderate readiness level across institutions, signaling both the momentum for growth and the need for targeted improvements in leadership support, strategy, and workforce development.

Scaling Simulation Capacity: Pre-Conference Workshops

ICSME 2025 was preceded by two impactful workshops aimed at enhancing simulation teaching skills across Jordan. Dr. Marc Lazarovici from LMU University Hospital (Germany) led a session on simulation fundamentals, while Prof. Abdulaziz Boker, and Dr. Baraa Tayyib from King Abdulaziz University (Saudi Arabia) co-led a more advanced workshop on simulation applications. These sessions received outstanding feedback for their practical content and international perspective, highlighting the appetite for hands-on training and faculty development in the region.

Voices from the Field: Grounded Reflections from Medical Deans

What made ICSME 2025 unique was not only the gaps and challenges presented using an evidence-based approach, but also the lived experiences shared by academic leaders. Discussions throughout the one-day conference reflected the current stage of SBE in Jordan, ambitions for improvement, and resource realities across institutions.

Professor Firas Qarqaz from Jordan University of Science and Technology shared the university's two-decade experience with simulation, empha-

sizing its role in sensitive specialties like obstetrics and anesthesia. Challenges include equipment deterioration and limited human resources, prompting plans to integrate AI and XR technologies and expand faculty training.

At Al-Balqa Applied University, Professor Shadi Hamouri highlighted strategic developments, including a newly dedicated interprofessional simulation floor, a revised curriculum, and strong alignment with international standards. Emphasis was placed on digital tools, faculty development, and global partnerships.

Professor Mohammad Alqudah from Hashemite University outlined structural and financial constraints, including limited funding, staff shortages, and overcrowding. His vision promotes interdisciplinary simulation environments and prioritizes communication, empathy, and patient safety alongside technical skills.

Dr. Fadi Sawaqed of Mutah University addressed the perception of being early in simulation adoption, clarifying that efforts began in 2004. A recovery plan is now in motion to refurbish infrastructure, integrate simulation across curricula, and formalize training guidelines.

Professor Abdulrahman Alshudifat of Aqaba Medical Sciences University shared plans to establish a cutting-edge simulation lab supported by augmented reality applications and institutional development goals, noting fewer structural constraints in private institutions.

From Yarmouk University, Dr. Jomana Alsulaiman emphasized the institution's commitment to building a sustainable and inclusive simulation ecosystem. She highlighted the launch of interdepartmental simulation scenarios, investment in high-fidelity equipment, and faculty development workshops. Central to Yarmouk's vision is a strong belief in the transformative power of experiential learning, coupled with institutional leadership that has driven the integration of simulation into the core medical curriculum and infrastructure.

The Road Ahead

The conference concluded with a collective commitment: Jordan's medical education community now faces a critical juncture; an opportunity to shape the future of healthcare training through simulation. There is widespread recognition that simulation offers a powerful pathway for modernizing medical education, but scaling it meaningfully will require:

- Clear national standards and guidelines that actively integrate simulation into the medical curriculum.
- Dedicated investment in human capital by training qualified simulation educators and leaders.
- Strengthening partnerships across academic, clinical, and governmental sectors and sharing expertise at the national, regional, and global platforms.
- Sustainable funding frameworks in SBE infrastructure to upgrade simulation technologies and facilities across all stages of medical education.
- Investment in research activities within the scope of SBE ensuring global networking.

Final Thoughts

At Yarmouk University, we are proud to be at the forefront of this movement. Hosting ICSME 2025 was not an end but a beginning; a spark that aims to transform simulation into a cornerstone of medical education excellence in Jordan.

We welcome collaboration with all local and international partners who share our vision for a dynamic, skills-driven, and patient-centered future in healthcare education.

Read in your language

SIMTALKS

A day in the life of a Sales President: Sil Fon Tang

At SIMZINE, our goal is to shed light on what different professional roles in medical simulation actually involve. In this article, we explore the daily responsibilities of a Sales President through the experience of Sil Fon Tang. From global conferences and live product demos to strategy meetings and team coordination, Sil Fon accompanies us on a discovery of how innovation, travel, and training come together to improve healthcare education and improve patient safety. This personal account sheds light on the challenges, rewards, and impact of working in a field where cutting-edge technology helps save lives every day

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People often ask me what I do for a living. When I tell them I work in medical simulation, the responses vary widely. Some nod politely, pretending to understand. Others ask, "So... you make robot doctors?" Not quite. At **MEDICAL-X**, we create high-tech patient simulators and task trainers that help medical professionals practice life-saving skills in a safe environment. But explaining what I do is one thing, experiencing it is another.

If there's one word that describes my job, it would be dynamic. No two days are ever the same. Actually, scratch that—there is one constant: travel. I spend nearly half my time bouncing between time zones, flying from China to America, stopping in Europe, and sometimes catching my breath just long enough to unpack before heading off again. Whether I'm at a conference with our own booth or supporting our distributors at their stands, my mission is always the same: to demonstrate, train, and show the world why medical simulation is not just important, but essential.

The Art of Demonstration

There's a real art in demonstrating healthcare simulators. You don't just push a few buttons and say, "Look, it moves!" No, it's about storytelling. When I showcase one of our high-fidelity patient simulators, I don't just explain its features, I take people through real-world scenarios.

Picture this: You're standing in a crowded exhibition hall, surrounded by beeping devices and medical professionals eager to see the latest innovations. In front of you is our neonate simulator, NENASim. You press a button, and suddenly, the tiny baby starts turning blue: hypoxia. The heart rate drops. The audience leans in. You see their expressions change from curiosity to concern. This isn't just a mannequin; it's a training tool that teaches healthcare providers how to respond to real-life situation. And when I explain how NICU teams can use this simulator to save fragile newborns, I know I've captured their attention.

From Factory Floor to Conference Halls

When I'm not on the road, I'm at our headquarters in the Netherlands. Visitors, such as medical professionals, distributors, and industry leaders, from all over the world come to our factory, eager to see our simulators in action. We roll out the red carpet—live tours, hands-on training, and deep dives into how our products are made. It's one thing to see a simulator in a brochure; it's another to witness firsthand how we bring medical training to life.

We also organize company days, bringing together our distribution partners and end-users to learn more about how we can support their needs. These events are a fantastic way to strengthen relationships and ensure our partners fully understand how to use and promote our products effectively.

Beyond demos and travel, I'm also part of the management team. Alongside the CEO and the Director of Production, I am constantly looking ahead:

- ✔ What's next in medical simulation? New products? New market trends?
- ✔ What do the customers need?
- ✔ How can we push the boundaries of training technology?

These are the questions that keep us moving forward.

The two Big Shows

January is always a whirlwind. It kicks off with IMSH in the United States, the biggest medical simulation conference in the world. This is our stage to unveil our latest innovations, meet with our global distributors, and connect with customers who are just as passionate about simulation as we are. It's a week of back-to-back meetings, exciting product showcases, and a chance to see what's happening in the industry.

And just when I think I might get a break, Arab Health comes knocking. Held in Dubai, it's the perfect opportunity to meet distributors from the Middle East, North Africa, and even as far as Pakistan. This is where business meets culture, where partnerships are built over coffee and conversations. Plus, it's a chance to catch up with fellow simulation manufacturers and see what new solutions are emerging.

The Team Behind the Scenes

While I might be the one on the road, leading demonstrations and meeting clients, my work would be

impossible without the support of a dedicated team behind the scenes. Each department plays a key role in helping me do my job effectively.

Our marketing and media colleagues make sure that our message reaches the right audience. Thanks to their work - videos, brochures, social media content - I can walk into a conference booth knowing our brand and products are already speaking for themselves.

Sales operations is the anchor that keeps everything organized. When I'm in back-to-back meetings across time zones, they ensure that follow-ups are handled, quotes go out on time, and nothing falls through the cracks. Clinical expertise is also essential. I rely on our medical product specialists to bring..

Read in your language

SIM CORNER

ADVERTORIAL

Virtual Reality Answers the Call for Sustainable, Scalable Trauma Simulation

Simulation provides immersive learning and robust assessment for trauma providers. Trauma certification courses such as the European Trauma Course (ETC), the Advanced Trauma Life Support (ATLS), Trauma Nursing Core Course (TNCC), and Prehospital Trauma Life Support (PHTLS) integrate simulation into their curriculum to emphasize teamwork and non-technical skills. Many see Virtual Reality (VR) as an opportunity to make trauma simulation more realistic and accessible worldwide. To meet the demand for high-quality, accessible simulation, VR training must support complex interprofessional dynamics, realistic medical physiology, and comprehensive virtual tool sets that align with trauma management learning objectives.

The rapid integration of artificial intelligence (AI) into medical education is transforming how students learn, practice, and master essential skills. Yet, for AI tools to deliver meaningful results, they need to be supported by intuitive, well-designed user interfaces (UI) and dashboards that bring clarity to complexity. Dashboards in AI systems function much like the cockpit of an airplane: they provide real-time, actionable data to help students stay on course while managing the inevitable turbulence of medical training.

Immersive VR training setup allows for a lightweight, high-fidelity simulation consisting of (1) Facilitator PC (2) VR headset(s) and (3) hand controllers. Source: SimX Inc.

VR Training Platforms Allow the Ability to Train Anywhere and Anytime

VR participants wear a headset that fully replaces their view of the real world, allowing for customization of environments, tools, and patient features. Many VR headsets operate wirelessly and do not require a cable to directly link to a computer, enabling participants to walk around the environment naturally. This technology can be networked to accommodate geographically dispersed participants and further foster international cooperation. Furthermore, the ability for instructors to facilitate sessions remotely improves access to high-quality training on a global scale.

Commercially available VR platforms offer lightweight simulation alternatives to traditional simulation systems. They typically require just a headset and laptop, making the system low-footprint and portable. VR training sessions are flexible, and can be moderated by expert or peer facilitators, or they can progress autonomously with artificial intelligence (AI) guiding scenario progression. The systems can automate vital sign changes, physical exam findings, and state flow changes based on learner interventions. These automatic features reduce staffing requirements to run complicated, immersive simulations. All actions can be tracked in real time into an automatically generated after-action report (AAR) to facilitate immediate debriefing. VR allows more flexibility, allowing training to happen anywhere at any time.

Multiplayer, fully immersive field VR training. Source: SimX Inc. © Marjolijn Lamme.

VR Allows for Robust Interprofessional Simulation

Trauma management relies on coordinated teamwork among nurses, physicians, and other healthcare personnel working together to stabilize patients. VR platforms allow for multiple players to simultaneously manage the scenario. The VR platform can track users, assigning participants to specific team roles within the training exercise. Other features allow the addition of virtual non-player characters (NPCs) to perform the functions of team-members that are not present in the simulation, allowing more flexibility to run the simulation with different learner populations. To address learning objectives for pre-hospital providers, nurses and physicians, scenarios must allow transitions in care from the point of injury, ambulance, and hospital trauma bay. All the required tool sets must be replicated in virtual reality with realistic fidelity to allow learners to practice trauma management as they would in real life. VR platforms are able to deliver on this, providing realistic, immersive environments that allow all types of participants the ability to train their specialty specific learning objectives and work together as a team to manage complicated trauma scenarios.

VR allows multi-player immersive trauma simulation. Source: SimX Inc.

Conclusion & Way Ahead

The mainstream adoption of affordable VR technology marks a pivotal moment for trauma simulation. Its integration promises reduced logistical burdens and enhanced accessibility for scalable, high-fidelity collaborative training in fundamental trauma management. VR is a versatile tool that complements existing methods, offering immersive practice and decision-making opportunities across all training backgrounds. Realizing VR's potential will require thoughtful curriculum integration and infrastructure investment. However, the long-term gains, coupled with the inherent cost-efficiencies, make further development and adoption of these platforms an imperative path ahead.

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Read in your language

DID YOU KNOW...

In cordata verso la sicurezza: simulazione in sala parto in un presidio ai piedi delle Alpi

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Come una cordata che affronta l'ascesa, passo dopo passo, anche in sala parto la formazione si costruisce in sinergia, attraverso fiducia, competenza e allenamento condiviso. In un contesto montano dove la casistica è limitata, la simulazione rappresenta l'ancora di sicurezza per affrontare le emergenze-urgenze ostetriche e neonatali.

In montagna si cammina a piccoli passi...

Nel cuore della Carnia, a Tolmezzo, piccolo presidio ospedaliero montano del Friuli Venezia Giulia, la gestione delle emergenze in sala parto si confronta con una doppia sfida: l'inverno demografico e la ridotta esposizione clinica dovuta allo spopolamento delle aree montane. In questo contesto, promuovere la cultura della sicurezza e implementare strumenti efficaci per migliorare la prontezza operativa diventa una necessità strategica.

La simulazione in situ di scenari ostetrico-neonatali si è dimostrata uno strumento fondamentale per mantenere alto il livello di preparazione del team multidisciplinare coinvolto nella nascita. A partire dal 2020, il team dell'Ospedale di Tolmezzo ha intrapreso un percorso strutturato di formazione simulata, con l'obiettivo di affrontare le emergenze perinatali in un ambiente protetto ma quanto più possibile realistico.

I primi passi... per costruire un progetto condiviso

Alcuni sentieri di montagna necessitano di una buona guida, un maestro che abbia già delineato mentalmente il percorso da compiere e gli ostacoli da superare. La nostra guida è stata il dott. Loris D'Orlando (primario di anestesia e Direttore medico del nostro presidio fino al 2024) e grazie al suo incoraggiamento e alla donazione di un task-trainer (Mamanatalie®, Laerdal), a partire dal 2020 abbiamo mosso i primi passi nel mondo della simulazione.

L'obiettivo era ambizioso: coinvolgere stabilmente ginecologi, ostetriche, anestesisti, neonatologi, infermieri e OSS in simulazioni complesse, che integrassero tutte le professionalità presenti in sala parto.

Il gruppo designato a progettare il corso di simulazione prevede almeno 2 professionisti per ogni area del materno-infantile; ogni tutor si è formato al Centro SIMNOVA, svolgendo un corso per facilitatori di simulazione.

Ad ogni simulazione il team di partecipanti è composto da almeno un ginecologo, un'ostetrica, un pediatra, un infermiere della pediatria, un anestesista, un infermiere di terapia intensiva/nurse di sala operatoria e da un operatore socio-sanitario (OSS).

I dubbi all'inizio sono stati molti... Sette partecipanti coinvolti sono troppi? La simulazione se parte dal cesareo e arriva al neonato è troppo lunga? Abbiamo scelto di ricreare uno scenario che riflettesse il più possibile la realtà, discostandoci dalle classiche simulazioni con manichino con due-quattro partecipanti alla volta, a cui eravamo stati abituati.

Dal 2020 ad oggi, svolgiamo simulazioni una volta al mese: gli incontri di 4 ore attualmente prevedono 1 esercizio divisi in gruppi e 2 scenari di simulazione con paziente simulato che si svolgono nel blocco travaglio/parto e isola neonatale (*in situ*), seguiti da debriefing strutturati. Nel corso del tempo, parallelamente alla nostra crescita nel "governare" le simulazioni, agli obiettivi *soft skills* abbiamo affiancato problematiche tecniche. Per quanto riguarda l'ambito neonatale abbiamo potuto elevare il grado di difficoltà degli scenari, grazie alla recente donazione di un simulatore neonatale più sofisticato (Newborn Anne®, Laerdal).

Un format in continua evoluzione

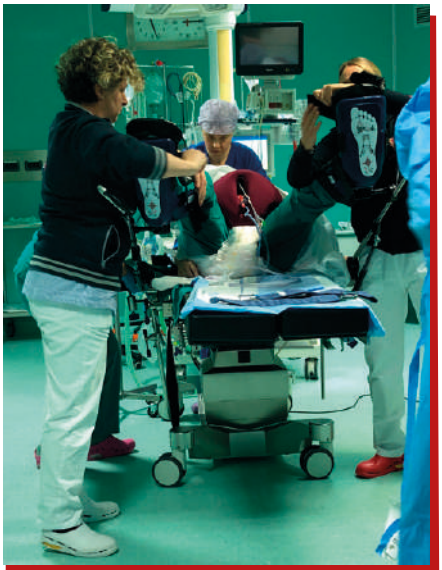
Nel tempo il format è stato rimodulato per rendere l'esperienza sempre più immersiva ed efficace:

La Teoria

L'introduzione teorica è finalizzata a condividere le priorità e criticità che ciascuna equipe affronta nella gestione di queste situazioni. Abbiamo tuttavia progressivamente rimodulato il format: dalle lezioni teoriche in presenza siamo passati a materiale didattica (testi in pdf, video, presentazioni in ppt registrate) caricato su piattaforma condivisa alla quale ogni partecipante è invitato ad accedere prima dell'esperienza simulata.

Le soft skills

Abbiamo da subito incentrato l'attenzione sulle soft-skills con la volontà di aumentare la consapevolezza circa le dinamiche di squadra, perfezionando in particolare la comunicazione. È stata adottata una metodologia attiva che prevede la riflessione personale degli operatori su principi del Crisis Resourse Management: a turno agli operatori commentano un punto reputato fondamentale con esperienze personali. Abbiamo fatto tesoro di quanto esperito a Novara



Preparazione paziente nel blocco operatorio per taglio cesareo emergente

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Simulazione di rianimazione neonatale

su l'*Uso dei mattoncini LEGO per l'addestramento dei debriefers* e l'abbiamo applicato per stimolare gli operatori a riflettere sulle competenze non-tecniche annullando la componente clinica e distendendo anche l'atmosfera tesa per classica "l'ansia da prestazione".

Gli scenari

Abbiamo scelto di contestualizzare gli scenari di simulazione in un ipotetico turno festivo o notturno, per valutare l'efficacia dei percorsi e delle procedure nei momenti più critici, quando le risorse sono limitate e diviene ancor più importante che ogni operatore con le sue specifiche competenze, conosca le priorità e le difficoltà di ciascun membro dell'equipe che interviene in sala parto.

Abbiamo utilizzato una modalità di simulazione ibrida combinando il paziente simulato con task trainer. E abbiamo scoperto che quello che al principio ritenevamo una scarsezza di risorse si è poi rivelata una ricchezza, perché il paziente simulato crea una tensione molto verosimile e permette di mettere in luce criticità come il trasporto dalla sala parto alla sala operatoria e la comunicazione con il paziente stesso.

Due sono le situazioni che abbiamo simulato: (a) il taglio cesareo (TC) urgente/emergente e l'assistenza al neonato nei primi minuti di vita; (b) l'emorragia post partum (EPP).

Con il tempo, la complessità degli scenari è aumentata, in parallelo con l'esperienza del team e l'adozione di nuovi simulatori, come il più recente Newborn Anne®.

Alcuni dei componenti del Team di simulazione

Considerazioni finali: ancora in cordata, passo dopo passo

Il bilancio è positivo: le simulazioni hanno migliorato l'efficacia operativa e rafforzato la coesione tra professionisti. Le criticità emerse, come la carenza di linguaggi codificati o l'eterogeneità nei protocolli, sono ora affrontate in un ambiente protetto e collaborativo.

In un contesto montano dove "fare rete" non è una metafora ma una necessità, la simulazione continua rappresenta il punto di ancoraggio per garantire sicurezza e qualità nei momenti più critici della nascita. Proprio come in una cordata, si procede insieme, un passo alla volta.

Allo scopo di ottimizzare l'assistenza e le cure l'équipe di sala parto dovrebbe possedere conoscenze comuni ed elaborare protocolli standardizzati per le patologie che caratterizzano le emergenze ostetriche e le differenti modalità di trattamento.

IL TEAM

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Read in your language

SIM VOICES

Malabaristas, considerações sobre o equilíbrio entre vida profissional e familiar

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De um encontro casual na SIMUniversity a uma conversa profunda sobre carreiras e valores pessoais, este artigo captura uma conversa franca entre um académico sénior e uma jovem estudante de medicina. Juntos, eles refletem sobre o impacto da formação em simulação, o peso das decisões no início da carreira e a importância do equilíbrio sustentável entre vida profissional e pessoal na medicina.

Encontrámo-nos pela primeira vez no Porto, em dezembro de 2023, no 20º aniversário do SIMFMUP, o centro de simulação médica da nossa Faculdade. A Joana e os seus colegas estavam a treinar para a competição nacional do programa SimUniversity da Society for Simulation in Europe (SESAM) e o Willem deu uma palestra lá. Depois, em junho de 2024, encontrámo-nos novamente em Praga, na reunião anual da SESAM, onde a Joana e a sua equipa ganharam a competição internacional e o Willem deu a palestra comemorativa do 30º aniversário da sociedade. De volta ao Porto, em março de 2025, tivemos uma conversa informal que rapidamente se tornou mais séria.

W. Qual foi o motivo que te levou a escolher medicina?

J. Queria ser médica desde que o meu avô faleceu. Ele morreu na UCI devido a fibrose pulmonar quando eu tinha sete anos e lembro-me de os meus pais dizerem que não havia mais nada que os médicos pudessem fazer para o ajudar. A partir desse momento, sonhei em estudar medicina para compreender a sua doença, encontrar uma cura e ajudar os outros, para que mais ninguém tivesse de ouvir que não havia mais nada a fazer. Depois de um desvio pela medicina dentária, fui aceite na FMUP. Com o passar dos anos, compreendi a natureza idealista do meu sonho de infância, mas a minha paixão pela investigação só se tornou mais forte. Desde o meu terceiro ano, faço parte de um grupo que estuda o impacto cardiovascular das doenças endócrinas no Departamento de Fisiologia e Cirurgia, onde também tive a oportunidade de lecionar fisiologia.

W. Essa é uma motivação sólida! Alguma ideia sobre a especialidade que gostarias de seguir?

J. Sinto-me atraída pelos cuidados intensivos e pela medicina de emergência. A participação no concurso SimUniversity teve um impacto profundo no meu percurso académico e pessoal. Tornei-me instrutora de suporte básico da vida. É um grande privilégio ensinar outras pessoas a salvar vidas! Atualmente, estou a concentrar-me na minha rotação clínica e a preparar-me para o meu exame final. Mas esta década na medicina dentária e na medicina deixou as suas marcas. Os cuidados intensivos e a medicina de emergência são campos altamente exigentes, que requerem um sacrifício pessoal significativo. Poderei vir a considerar uma especialidade que permita um melhor equilíbrio entre a vida pessoal e profissional, mas chegar a uma decisão firme é um desafio.

W. Estou bastante satisfeito com o meu próprio equilíbrio entre vida profissional e familiar e, se quiseres, podes ler mais sobre isso na minha autobiografia, mas não sou médico. No entanto, há vários médicos na minha família e posso tentar resumir o seu percurso do ponto de vista do equilíbrio entre vida profissional e familiar.

J. Por favor, avance!

W. Bem, o meu irmão, nascido em 1963, e apenas 14 meses mais novo do que eu, seguiu as pisadas dos meus pais e estudou medicina. Depois de dois anos num programa de residência cirúrgica que não o deixou mais perto de se tornar cirurgião, abandonou esse caminho e foi para a indústria farmacêutica. Durante seis anos, chegou a ter a sua própria empresa, com 23 empregados. Tem dois filhos adultos, mas divorciou-se da mãe deles. É viciado em trabalho e gosta de ganhar e gastar dinheiro. Viaja muito, também como turista, e tem jogado um ténis de bom nível durante a maior parte da sua vida. Atualmente, está a tentar obter um contrato com uma editora para traduzir um livro de filosofia de francês para neerlandês.

J. Interessante. Vocês são próximos?

W. Quando éramos crianças, lutávamos pelos brinquedos e disputávamos a atenção dos nossos pais, mas agora somos muito próximos.

O nosso pai nasceu em 1928 e queria estudar engenharia eletrotécnica: quando era adolescente, consertava rádios antigos para substituir os que tinham sido confiscados pelas forças alemãs que ocuparam os Países Baixos na Segunda Guerra Mundial, mas a mãe dele não achava a engenharia suficientemente prestigiante e obrigou-o a frequentar medicina. Tornou-se obstetra e trabalhava 70 horas por semana. Tinha muitos interesses, mas não tinha tempo para se dedicar a eles. Como trabalhava parte do tempo em casa, víamo-lo com bastante frequência. Provavelmente, o stress relacionado com a pressão do trabalho impediu-o de se livrar do vício do tabaco. Os primeiros cigarros foram-lhe oferecidos pelos soldados americanos e canadianos que libertaram a sua região. Morreu de cancro do pulmão durante os meus primeiros meses de estudos de engenharia eletrotécnica. Teria ficado muito surpreendido, e feliz por mim, pelo facto de eu ser agora professor de Obstetrícia, Ginecologia e Pediatria.

J. É interessante ver como o equilíbrio entre a vida profissional e fami-

liar, ou a falta dele, moldou os seus percursos. Lembro-me de ter mencionado que também há duas médicas na sua família. Gostaria de saber como é que elas geriram o equilíbrio entre a vida profissional e pessoal ao longo das suas carreiras. É algo em que tenho refletido ao considerar o meu próprio futuro.

W. A minha mãe nasceu em Surabaya, na ilha indonésia de Java, em 1933. Na altura, a Indonésia era uma colónia holandesa. Adiou os seus planos de residência para muito mais tarde, para criar três filhos cheios de energia sem grande ajuda do marido, e começou por ser médica escolar a tempo parcial. Quando eu e o meu irmão já tínhamos saído de casa para estudar e a nossa irmã se preparava para fazer o mesmo, ela voltou para a universidade para estudar medicina juvenil, na altura uma especialidade nova. Uma semana depois de se ter licenciado, morreu num acidente de viação aos 53 anos. Tinha uma personalidade muito solarenga e extrovertida e prestava apoio prático e emocional a muitas pessoas. Não se imagina que, em criança, tenha passado dois anos e meio num campo de concentração japonês em Java, durante a Segunda Guerra Mundial.

J. Uau, isso demonstra uma determinação notável! E a segunda médica?

W. A minha avó materna, nascida em 1902, queria estudar teologia, mas não o pôde fazer porque não teve latim e grego no liceu. A sua segunda opção era o teatro, mas o pai não concordou com essa escolha. Acabou por se tornar médica, tal como dois dos seus irmãos. Há cerca de um século, acompanhou um professor à Indonésia para fazer o internato de radiologia e aí teve a sua primeira experiência profissional. A Segunda Guerra Mundial chegou e os japoneses invadiram o país. Depois da guerra, a família regressou aos Países Baixos e, sobretudo graças ao trabalho e ao rendimento da minha avó, recuperou das dificuldades. Com quase 70 anos, tornou-se pregadora leiga em igrejas protestantes por todo o país, o que fez durante cerca de duas décadas. Teve, relativamente abertamente, namoradas antes de conhecer o meu avô e depois de ele morrer. Escrevi o meu primeiro livro sobre ela.

J. Que prova de resiliência e da capacidade de nos reinventarmos, apesar da imprevisibilidade da vida. Particularmente significativo nesta fase do meu percurso. Vários professores lembraram à nossa equipa que, embora devamos concentrar-nos no exame, não devemos encará-lo como algo que define o resto das nossas vidas. Sublinharam repetidamente que, mesmo depois de selecionar uma especialidade, a escolha não tem necessariamente de ser definitiva, a menos que assim o decidamos. Essa perspetiva foi tranquilizadora e alinha-se perfeitamente com os exemplos que deu.

W. É certamente a experiência do meu filho, que se formou como psicólogo, mas depois decidiu tornar-se acrobata. Não posso dizer-te qual é o super-herói que ele interpreta na Disneyland Paris, mas trata-se de um fato vermelho e azul.

J. Continuo a ter dificuldade em estabelecer o equilíbrio certo entre o desejo de me esforçar para fazer coisas extraordinárias e a adoção de um ritmo mais sustentável, mas acredito que, algures pelo caminho, encontrarei o meu rumo. Agradeço-lhe imenso o tempo que dedicou a partilhar estas histórias inspiradoras!

W. É claro que é preciso fazer essa escolha, mas eu já estou decidido. Já vi pessoas a esforçarem-se por fazer coisas extraordinárias. Algumas falharam e ficaram profundamente frustradas, outras foram bem sucedidas, mas continuam descontentes com as coisas que ainda não conseguiram ou que tiveram de sacrificar pelo caminho. Quanto a mim, prefiro definitivamente o ritmo sustentável e deixar que as pessoas e os projetos (e os cargos e o dinheiro) surjam no meu caminho. Está bem que por vezes procuro pessoas ou inicio projectos. Depois, executo-os com curiosidade e entusiasmo. Ou termino um projeto ou, se este ficar parado, sigo em frente, muitas vezes para outro país ou continente. Acredito firmemente que esta abordagem aumenta, em vez de reduzir, a probabilidade de acontecerem coisas extraordinárias, e se não acontecerem no domínio profissional, também não há problema. É um pouco intrigante para mim o facto de ser contrabaixista amador me dar tanta satisfação como o meu I&D de nível internacional. Em termos de rendimentos, esta última é mais fiável. Já estas a percorrer um caminho, e é bastante impressionante. Continua! E mantém-me informado. Voltaremos a encontrar-nos depois do teu exame.

J. Obrigado por partilhar a sua experiência e as suas ideias, professor! Valorizo verdadeiramente a lembrança de que o equilíbrio é fundamental e de que um ritmo sustentável pode levar ao sucesso de formas que, à partida, não se esperaria. É bom saber que se sente realizado tanto a nível profissional como pessoal!

W. Obrigado, Joana, aproveito tanto como tu! E, por favor, chama-me Willem para que eu não sinta que tenho 130 anos.

J. OK professor! Estava a brincar, OK Willem.

Read in your language

ADVERTORIAL

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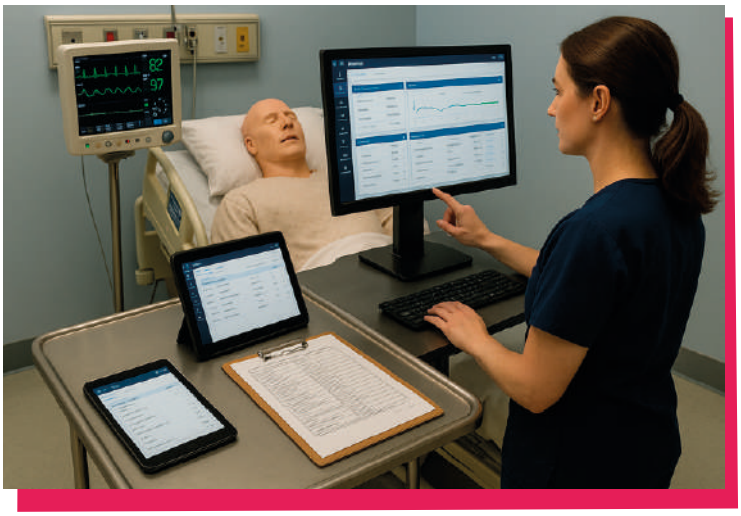
Transforming Scenario Design at SIMNOVA with iRIS

Scenario design in simulation-based education is often time-consuming and inconsistent. This article explores how a simulation center in Italy transformed its approach to scenario design by adopting a cloud-based platform tailored for simulation education, iRIS. This case study highlights how structured tools aligned with best practices can improve efficiency, boost faculty engagement, and raise the overall quality of simulation-based learning. The experience offers a model for other centers seeking scalable, sustainable improvements in educational design.

The Missing ECG

It's 8:25 a.m., five minutes before a simulation starts. The equipment is ready, learners are on their way, and the instructor makes one final check, only to realize the ECG printout is missing. A frantic search begins: emails, USB drives, old folders. The file exists, somewhere, but which version? Was it updated last week? Did someone forget to attach it?

This kind of last-minute scramble is all too common in simulation-based education. Despite using detailed templates and best practices, many centers struggle with fragmented files, inconsistent formats, and poor version control. What should be a streamlined educational experience can quickly become a logistical headache: wasting time, increasing stress, and risking the quality of the learning.



The Problem with Our Scenario Design Process

Designing simulation scenarios is a time-intensive task, often requiring hours of work by skilled instructors. At SIMNOVA, the Simulation Center of the University of Eastern Piedmont in Novara, Italy, we followed a detailed template based on best practices in simulation education, covering learning objectives, patient details, vital signs, and debriefing points.

Despite this structure, the process was inconsistent and inefficient. Instructors interpreted the template differently, often leaving sections incomplete or poorly formatted. Scenarios were stored as individual Word or PowerPoint files, scattered across personal devices, with key materials, like lab results or imaging, frequently lost in emails or forgotten on USB drives.

Version control was a persistent challenge. Without a central repository, identifying the most up-to-date file was guesswork. Reusing past scenarios was rare; starting from scratch was often quicker than digging through old folders. As Dr. David Grant, former SESAM president, observed, we were stuck in the cycle of "reinventing the wheel."

Attempts at standardization through templates and peer review fell short without effective enforcement tools. Busy schedules, differing tech skills, and human error continued to undermine consistency. Over time, our scenario library became fragmented, with varying quality and usability, making cross-instructor collaboration difficult and error-prone.

Searching for a Better Solution

By early 2024, we knew we needed a more effective method for designing scenarios. Our team was forward-thinking, and university administration supported exploring new approaches. We considered building a custom platform: a database or web application specifically for our needs. We envisioned a central location for all scenario information, attached media files, and revision tracking. However, developing a custom solution seemed daunting. It required significant IT expertise, funding, and time, with no guarantee of future compatibility with simulation technology or proper long-term maintenance.

We also examined tools already known by our team, who formerly used CAE LearningSpace. This works well for audiovisual recording and managing scheduling and debriefing needs, and we wondered if it could also manage scenario content. Unfortunately, LearningSpace wasn't designed for collaborative authoring and structured content creation. It meant we would still be uploading Word files, and living with all the old issues of inconsistency and version confusion.

We experimented with simpler solutions like shared cloud folders and Google Docs. A shared drive provided a single storage location but

didn't enforce consistency or ease the writing process. Google Docs offered real-time collaboration, addressing a small part of the problem, but we were still using our difficult template in an online document. We still needed to manually format everything and remember every detail to include. Collaborating in a generic document also risked accidental content overwrites or formatting problems. We needed something specifically built for simulation scenario design.

As summer approached, the SESAM 2024 conference in Prague arrived, and one workshop caught our attention: "Standardizing scenario design with AI: Using the iRIS cloud-based design system" led by Dr Kim Leighton, Executive Director of ITQAN Simulation Centre, an iRIS user, and Alexandra Clark of the iRIS team. It sounded remarkably close to what we needed, so we added it to our conference plan.

Discovering iRIS at SESAM 2024

The iRIS session at SESAM 2024 provided valuable insights. Though listed as a promoted industry workshop, the room was filled with simulation educators who, like us, sought solutions to scenario design challenges. Within minutes, the presenters described our exact struggles and demonstrated how their platform could resolve them.

Their live demo showed a structured yet dynamic template, guiding users through each element of scenario design logically. We recognized many sections from our own template, but here the software directed the process, making it difficult to overlook sections. This offered the built-in structure we wanted to ensure complete, consistent scenarios.

What impressed us most was that this wasn't just a better form—it was a fully integrated system for scenario development. iRIS aligned with established simulation best-practice frameworks like ASPiH and INACSL standards, incorporating them into the platform's workflow. For educators who had worked hard to teach and enforce those standards manually, this was reassuring. The platform seemed to encourage best practices automatically, potentially reducing our faculty development burden.

We were surprised to learn that over 2,000 simulation authors globally were already using iRIS. How had we not heard of it before? (We later realized that iRIS had strong early adoption in the UK among networks we weren't connected to). Its widespread use gave us confidence that this was a mature platform with a growing user base.

The "FairShare" library particularly interested us: a collection of user-contributed scenarios available to all iRIS users. The presenter showed how an existing scenario could be imported with A.I. and quickly modified for local use, customizing hospital names, vital signs, or translating content to Italian. This directly addressed our challenge of starting every design from scratch.

Conversations with other attendees who had implemented iRIS were encouraging. A UK educator mentioned iRIS's ability to output scenario files compatible with their manikin software. This was something we hadn't considered before.

By the conference's end, we felt strongly about iRIS's potential. We still needed to evaluate costs, data security, and team acceptance, but the advantages seemed substantial enough to move forward.

Implementing iRIS at SIMNOVA

After returning from Prague and completing administrative reviews and IT consultations, we obtained an iRIS license for SIMNOVA. Within weeks, our accounts were ready, and staff training sessions were scheduled.

Training proved straightforward. The platform's step-by-step guidance meant even less tech-savvy colleagues quickly adapted. Many faculty members commented that using it felt like completing a well-designed survey with helpful prompts (except this "survey" produced a complete simulation scenario). This user-friendly design lowered barriers to participation in scenario creation. Previously hesitant clinicians found more confidence with iRIS, as the software ensured critical components weren't overlooked, and they could reference library examples for structure guidance...

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Healthcare Simulation in the Era of AI

Artificial intelligence is transforming healthcare simulation by enabling rapid, adaptive scenario creation and personalized learning. From improving efficiency to aligning with evidence-based standards, AI empowers educators and simulationists to innovate, ensuring training is both effective and clinically relevant.

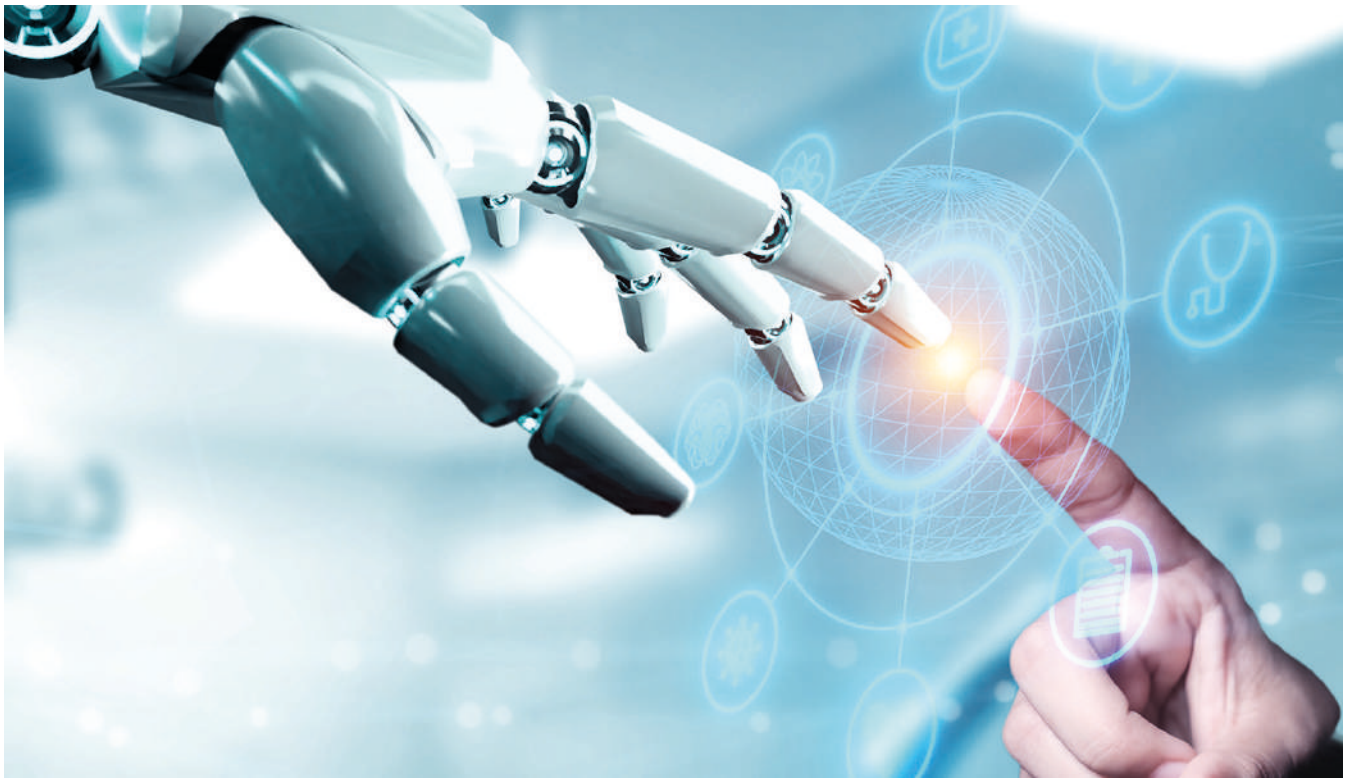
Artificial intelligence (AI) is a branch of computer science focused on simulating intelligent and learned behavior in machines, enabling them to mimic and adapt, ideally enhance, human cognition and actions (Patel et al., 2024). A prime example is ChatGPT, an advanced language model developed by OpenAI (2024) based on the GPT-4.0 architecture. Trained on vast amounts of textual data, ChatGPT uses deep learning techniques to generate coherent, contextually relevant responses to prompts, making it a versatile tool for both general and specialized applications.

With the rapid integration of ChatGPT and other AI tools in healthcare education over the past two years, the field stands at a critical juncture. Learners are leveraging AI without comprehensive training or clear guardrails, leading to potential misuse, including reliance on unvetted or inaccurate information. The quality of AI is based on data input therefore inaccuracies may occur. However, when used thoughtfully, AI offers substantial advantages, such as personalized learning pathways, adaptive questioning, case study development, and the ability to clarify complex concepts (Gonzalez, 2024).

Educators are also benefiting from AI's capabilities, particularly in streamlining the creation of teaching materials. The time required to draft exams, construct prompts, and design learning modules has decreased dramatically. The time saved affords the educator the ability to validate resources produced and increase availability to interact with the learner.

For healthcare educators specializing in simulation-based learning, the arrival of AI represents a paradigm shift. Traditionally, simulation scenarios were sourced from manufacturers or painstakingly developed by experts. While these scenarios should adhere to best practices, such as the Healthcare Simulation Standards of Best Practice® (HSSOBP) (Watts et al., 2021), their creation is labor-intensive and time-consuming.

AI has introduced a groundbreaking approach to simulation design, offering speed and flexibility. By crafting high-quality prompts—descriptive instructions specifying the audience, learner level, objectives, time constraints, decision points, and desired outcomes—simulationists can generate novel scenarios within seconds. AI can even recommend the



most suitable simulation modality, whether a standardized patient (SP), mannequin-based scenario, or task trainer. Caution is warranted when adapting AI-generated scenarios as covert biases may be embedded (Gupta, et al., 2022).

An additional advantage is AI's ability to integrate evidence-based guidelines. For instance, a prompt asking AI to create a respiratory deterioration scenario that incorporates the GOLD Initiative for Chronic Obstructive Lung Disease (2024) standards for COPD management yields not only a realistic case but also aligns it with current clinical standards. AI can also generate references to support scenario elements, though it's crucial to verify the accuracy of these citations, as occasional inconsistencies persist. Asking AI for a confidence level in its outputs can further enhance reliability.

Simulationists can leverage AI for quality assurance as well. By uploading a simulation review abstract, educators can request AI to appraise it using a standardized rubric, ensuring rigor and adherence to best practices (Harder, 2023). Although the rapid generation of simulations is transformative, the cornerstone of success remains the development of precise, well-considered prompts.

Investing time in crafting these prompts is essential to safeguard against subpar scenarios and maximize the technology's potential.

The integration of AI also reduces barriers to innovation. Faculty who once struggled with limited resources or expertise in simulation design can now develop creative, impactful scenarios that engage learners while maintaining fidelity to educational objectives. By shifting the emphasis from "learning about technology" to "learning with technology" (Dai et al., 2023), AI enables a new era of simulation-based education that is both dynamic and accessible.

As AI evolves, it is reshaping healthcare simulation into a more efficient, evidence-driven, and learner-centric discipline. By embracing this transformative technology, educators and simulationists can enhance not only the quality of training but also its relevance to real-world clinical practice.

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DID YOU KNOW...

Electronic Health Record in Simulation

https://doi.org/10.69079/SIMZINE.E25.N20.00074

The use of Electronic Medical Records is now standard in clinical practice, but only a few simulation programs integrate its use in a structured way. A recent joint project in Texas shows how filling this gap can improve student preparedness... but not without challenges.

Can a simulation be truly realistic without the use of an electronic health record?

Imagine this scene:

Sara, a second-year student in her nurse practitioner program, enters a simulation room. In front of her is a standardized patient complaining of chest pain. She has a few minutes to take the patient's medical history, analyze the symptoms, read an ECG, interpret blood tests and formulate a plan of action. But this time there is an added element: everything she needs is contained in an Electronic Medical Records (EMR) identical to the one she will find in a few months' time in the hospital. Sara nervously scrolls through the screen, looks for the troponin values, consults previous notes, types her observations while interacting with the patient. She is learning to think like a clinician, to document like a professional, to make decisions under pressure.

If we really want the simulation to prepare future healthcare practitioners for real-world clinical encounters, we need to recreate realistic environments that incorporate all the elements that are part of the practice. among these is also the EMR. However, integrating this tool into teaching is not simple.

In nurse practitioner programs, we use simulation to foster critical thinking and prepare students for real patient scenarios they may encounter. To promote patient safety and enhance training, it is important that these simulations use the same tools that the student will use in the clinic and hospital. Electronic Medical Records are universally used to capture patient data and allow the clinicians to review critical information regarding the patient's health. The addition of informatics components will not only make the encounter more realistic for the student, but also provide instructors the means to evaluate the student's ability to synthesize patient information and use all available information to formulate an accurate diagnosis and treatment plan. The nurse practitioner program at Lubbock Christian University recently added the use of an EMR to simulation activities and noted various pros and cons.

The challenge in using EMR during simulated patient encounters is finding one that can be tailored to the instructor's particular needs and is student friendly. Collaborating with Texas Tech University Health Sciences Center Simulation Program, we were able to use a non-production training domain of the EMR used at local hospitals and clinics. Multiple case scenarios were developed that include diagnostic results students could interpret including blood work, EKG, x-rays, spirometry, and urine cultures. Vital signs and chief complaints were tailored to the individual case scenarios and standardized patients were provided a script to follow. Students were allowed a set amount of time to flow between different clinic rooms with different case scenarios in which they interacted with the patients. The students documented in the EMR during the patient interactions and reviewed preloaded diagnostic information to guide formulation of a diagnosis.

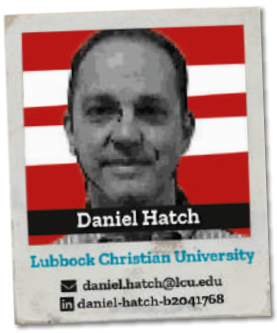
Student feedback regarding EMR use was mixed. While it did make the encounter more realistic, some students felt it increased their stress levels having to navigate through the EMR and document during the patient encounters. The instructors liked having the students work through the health history and interpreting diagnostic data in real-time

during patient encounters. The main limitation noted was that all diagnostic test results had to be preloaded and viewable in the EMR prior to the patient encounter. This removed the need for students to determine appropriate diagnostic tests to order based on their synthesis of the information they gathered from the patient, thus eliminating one avenue to measure student critical thinking. This is one issue that we will continue to explore and collaborate on a possible solution.

1. Begin student training and frequent exposure to the EMR early in the program prior to use in testing situations.
2. Initially use the EMR in low stakes simulation activities.
3. Pilot new simulations or significant changes prior to implementation.
4. Assign a sandbox chart to each student for free exploration and independent practice on their own time.
5. Identify EMR power users amongst the faculty who are well trained and versed in the use of the EMR during simulation to assist students.
6. Have an Information Technology Specialist available to help with technical issues such as password issues, lockouts, etc.
7. Have brief instructor collaborative meetings following any simulation activities to discuss what worked well and what did not.
8. Solicit and utilize student feedback to evaluate and enhance the experience.

Some tips that may help make the use of an EMR more effective and less stressful during simulation include:

Introducing any new technology into simulation can be challenging, but it is imperative that simulation activities be as authentic as possible and prepare students for real-world encounters. The extensive use of electronic medical records throughout healthcare requires that nursing students learn to use these tools effectively. EMR use during simulation can really tie everything together for students and allow them to feel submersed in a real-life patient care experience. While you may have challenges to overcome if you add the use of EMR during clinical simulation activities, most can be overcome with careful planning and implementation.



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DID YOU KNOW...

Free Pediatric Simulation Tools To Save Lives

https://doi.org/10.69079/SIMZINE.E25.N20.00081

As pediatric emergencies require fast and qualified responses, free simulation tools can play an important role in healthcare training. By breaking down cost and access barriers, these open resources enable healthcare professionals around the world to train effectively, bringing critical care expertise where it is most needed and ultimately saving young lives. Here are some examples of freely accessible tools

Every second counts when a child's life is on the line.

Yet, in many parts of the world, including both low- and high-income countries, healthcare providers face systemic challenges in responding effectively to pediatric emergencies. Limited resources, inadequate training, and a lack of access to realistic practice environments can hinder even the most dedicated teams. But what if life-saving skills could be taught and refined using free, accessible tools—anytime, anywhere?

Closing the Gaps with Simulation-Based Education

Improving pediatric emergency care has become a global priority, especially in resource-limited settings, where many newborn and child deaths could be prevented with timely, affordable interventions. Preparing for pediatric emergencies demands innovative and collaborative strategies. Healthcare providers working with children often encounter shortages of equipment, staffing constraints, and varying levels of clinical experience.

In the recent years simulation-based training has emerged as a crucial component in preparing healthcare professionals for pediatric emergencies where timely and effective interventions are vital. By recreating high-risk, low-frequency scenarios in a controlled environment, healthcare teams can practice critical interventions, refine decision-making, and enhance communication—all without putting patients at risk.

Empowering Teams Through Open-Access Tools

The biggest barrier to simulation training in underserved areas is cost. High-tech manikins and proprietary software are expensive, placing them out of reach for many institutions. As highlighted by Martinerie et al. (2018), financial constraints can significantly limit the implementation of simulation-based education in low-resource environments.

However, a growing number of open-access tools are changing the landscape.

Platforms like *Emergency SimBox* provide structured, ready-to-use simulation scenarios designed to help interdisciplinary teams practice life-saving skills in a controlled, low-resource environment. These tools allow learners to refine their decision-making abilities, improve communication, and develop the confidence needed to handle real-life pediatric emergencies.

Another valuable resource is *Annenberg HotKeys*, which leverages communication training to enhance team performance in high-stress situations. Effective teamwork and clear communication are critical components of successful pediatric emergency response, and tools like these help medical professionals refine their ability to work under pressure.

Additionally, the *Virtual Resus Room* offers an immersive online platform for practicing resuscitation scenarios. This tool allows teams to engage in interactive, web-based simulations that mimic real-life emergencies, helping providers develop and refine their skills in a flexible, accessible format.

Healthcare professionals can also access free resources through the *Emergency Medical Services for Children Innovation and Improvement Center (EIIC EMSC)* which provides educational materials and simulation-based training tools to enhance pediatric emergency care.

Another valuable platform is the Pediatric *Pandemic Network (PPN)*, which offers free training and resources aimed at improving pediatric disaster preparedness and emergency response.

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Links

Emergency SimBox
emergencysimbox.com

Annenberg HotKeys
asc.upenn.edu/annenberg-hotkeys

Virtual Resus Room
sites.google.com/view/virtualresusroom/home?authuser=0]

Emergency Medical Services for Children Innovation and Improvement Center (EIIC EMSC)
emscimprovement.center

Pandemic Network (PPN)
pediatricpandemicnetwork.org/lander

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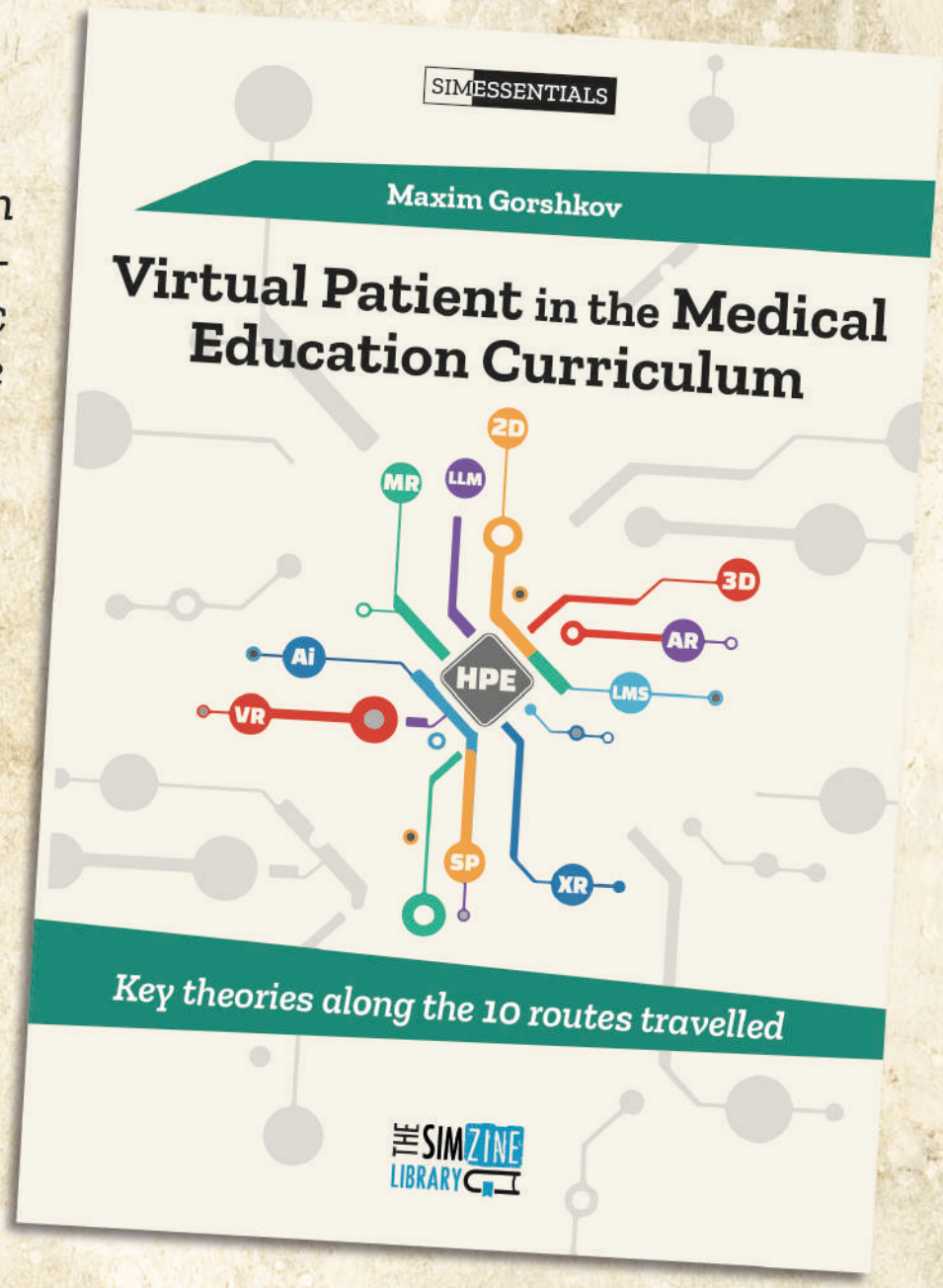

Virtual Patient in the Medical Education Curriculum

Key theories along the 10 routes travelled

Maxim Gorshkov

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