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SIMulation maga**ZINE**

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n.9 - June/Junio|Giugno 2023

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Willem van Meurs

The dolls' engineer

A personal journey through three decades of medical simulation

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SUMMARY

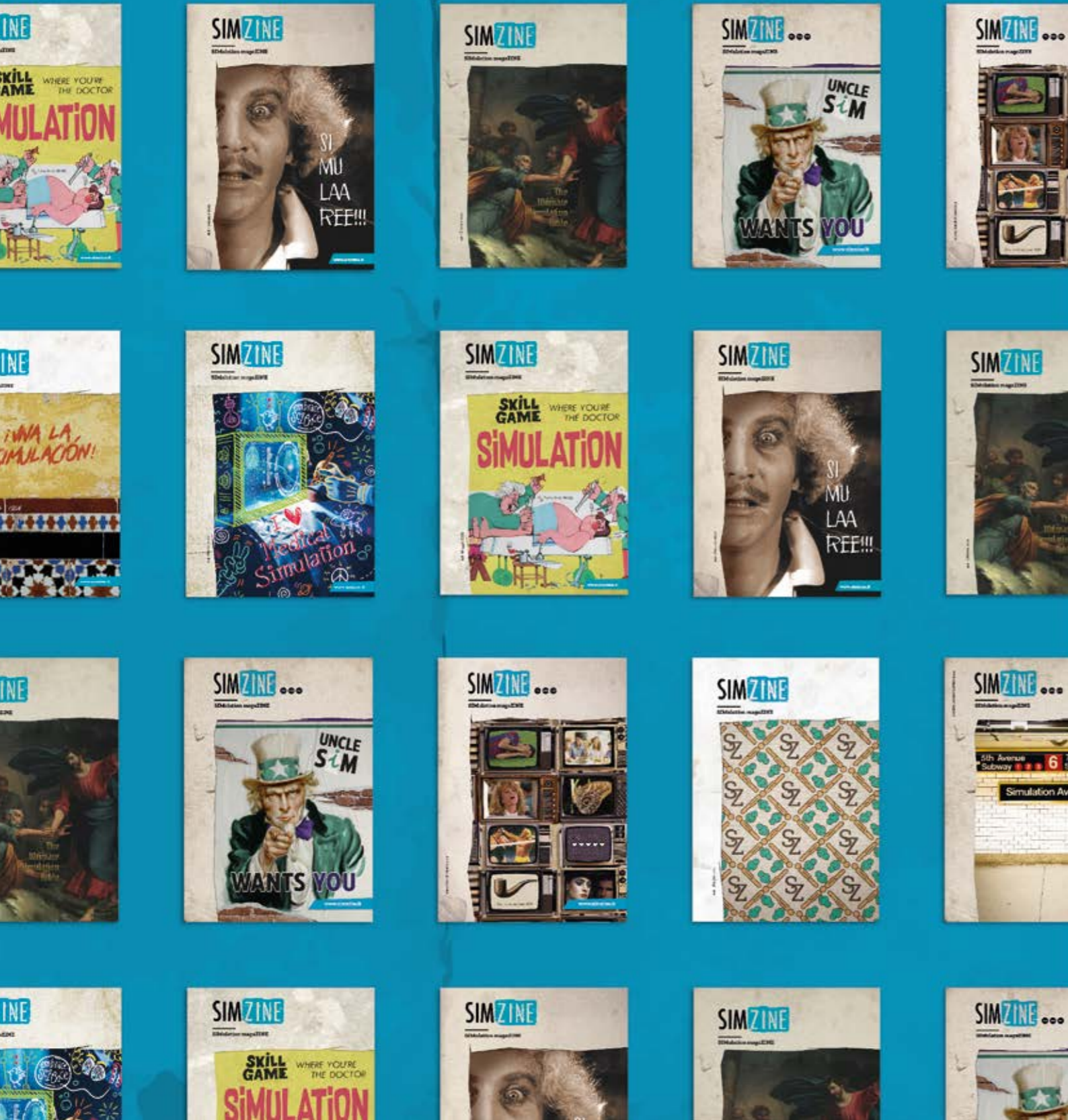
p.5	EDITORIAL	And we're growing!	P.L. Ingrassia
p.6	ABOUT SESAM	SESAM 2023	C.D Navarro - G. Norte - C. Sa Couto
p.8	SIMgeek	LabIM: ingeniería médica para la simulación	N. Lopez - M. L. Ortega
p.9	DID you know...	Insegnare la Teleassistenza attraverso la Simulazione? Ci pensa BeEmTel!	E. Loria
p.10	SIMsurgery	Virtual reality vs silicone inserts in laparoscopic training	Redazione
p.12	DID you know...	Safe Simulation: First Do No Harm	D. Raemer - A. Mullen - A. Hannenberg
p.13	SIMface	A conversation with Walter Eppich	Redazione
p.14	SIMcorner	What Does it Take to Create Great Scenarios?	Redazione
p.16	SIMcorner	The use of Virtual Patients in Medical and Nursing education	Redazione
p.17	SIMnurse	La seguridad clínica como asignatura transversal en Grado	A. T. Ramos
p.18	SIMdebate	What To Do About Virtual Patient Encounter Training?	Redazione
p.20	SIMvoices	Principales mitos en simulación clínica en el grado de enfermería	V. Mendez
p.21	SIMgeek	Chat GPT for Diversity, Equity, and Inclusion in Simulation	G.C. Gilbert - D.J. Backlund - M. Pierce
p.22	SIMtalks	An interview with President of SSSH, Abdulaziz Boker	Redazione
p.24	SIMvoices	La simulación desde el punto de vista técnico: el enfoque MOTIVA	M.A. Rodriguez-Florida
p.26	SIMvoices	Corporation Vs Start-Up: the big dilemma	J. Rahman
p.28	SIMgeek	Design and commercialization of a neonatal ECMO simulator	T. Antonius - W. van Meurs
p.29	DID you know...	Standardized Medical Students: a novel approach	L. Montagna - S. Oldani - L. Carengo
p.30	SIMspace	SIRMED: simulation and training along the chain of survival	K. Kranz - H. Regener
p.31	SIMtalks	Entrevista al Presidente de RENASIM, José Luis García Galaviz	Redazione
p.32	SIMcorner	Gaumard sceglie Simula Hub	Redazione
p.34	DID you know...	SimZones e debriefing	P. Gastaldi
p.36	SIMcorner	SmartSimulator: la simulazione per la radiologia	Redazione
p.38	SIMreview	Lung Ultrasound Simulator, simulatore gratuito di ecografia polmonare	A. Scalogna - S. Zorzi
	Cover	Graphic by	P. Cordini





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SIMZINE



EDITORIAL

And we're growing!

Summer issues of SIMZINE are always special for us because they mark the birthday of this lovely magazine. We started, back in 2021 as an all-Italian publishing experiment, with the genuine desire to share experiences and opportunities, get to know people, simulation centers and companies, understand in more detail the different simulation devices and the inventors who are making them. Last year, with the ambition to give voice to a larger number of curious simulationists, researchers and professionals and create a larger community of passionate people, we decided to become multi-language and we started publishing all articles in Italian, English and Spanish [and some articles also in French]. This year we are excited to share with you, beloved SIMZINERs, that we have become a publishing house. The aim is always the same: we want to share stories about simulation and people, making known the individuals who build the simulators we use, but also talking about theories, methods and products to better understand the context where we work. So, we are proud to announce our first book in the SIMpeople series: *The Doll's Engineer*. It is the autobiography of Willem van Meurs, an inventor of simulators. Actually, through his story we have a chance to discover and trace the last 30 years of simulation history. At least, that's what happened to me in the review and editing process. And I discovered, for example, that two decades ago the American Heart Association recommended for adults in out-of-hospital-cardiac-arrest, chest compression-only CPR for untrained lay rescuers; a team of brilliant minds realized that on their simulator chest compressions, applied to create blood flow, also created enough ventilation to keep both perfusion and oxygenation of vital organs going. But they were too busy to carefully check their models and publish these data. So, I can only wish you to enjoy the reading.

But it is not over. This week we're officially launching our newly redesigned website! Please go have a look at it, your feedback will be more than welcome: simzine.news

We sought to update our website's design and enhance reader engagement by increasing its accessibility and building in more space for innovative formats. Our new web presence features a fuller landing page that allows us to display more articles, and presents multimedia contents more prominently. At the same time, we aimed to maintain the character and the style of our in-print magazine to ensure the new site feels familiar and easy to navigate.

Our tech team has worked hard over the past few months to create a more engaging, user-friendly, and informative platform for our readers. We'd like to thank all of them and in particular Lucia Pampana, who coordinated all the work in the past months. We hope you enjoy the new site, and we welcome and look forward to your feedback. Feel free to email info@simzine.it with any thoughts.

And now I invite you, lovely SIMZINERs, to learn more about how to use ChatGPT to produce statistically accurate patient profiles based on NIH and WHO data to increase diversity in healthcare simulations. And take a look at the latest SIM Debate where our panelists discuss how to best use Virtual Patient Encounter technology while overcoming limitations and driving innovation in healthcare training. And don't miss the opportunity to meet Jacob Rahman, who shares his point of view and explains why having a clear understanding of the simulation industry can help educators make more efficient choices or discover how a simulator has been created through the direct voices of its inventors. And much more in this Summer issue of SIMZINE!

P.L.I.

SIMZINE

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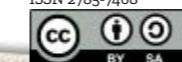
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ABOUT SESAM

SESAM 2023

Shaping the future of simulation together

It has been a lovely challenge and a great pleasure to start my role as chair of the SESAM Scientific Committee and lead the preparation of an exciting conference programme for our forthcoming Annual Meeting, which will take place in Lisbon on 14-16 June. Its theme is "Shaping the future of simulation together", and we have strived to make the event inclusive, engaging and representative of the current variation of practice.

This year's programme offers access to over 215 hours of content, over 70 scientific workshops, 6 industry workshops, 9 plenary sessions, 2 social events, opportunities to network in the SESAM lounge along with access to a superb exhibition where the latest technology and hardware will be showcased.

We have made some changes with regard to the breadth of abstract submission, incorporating new themes such as culture, wellbeing, diversity, surgical and psychomotor skills training and therapeutic uses of simulation. These new themes have permeated the programme, with exciting collaborative keynote lectures on the latest scientific trends, procedural skills

and psychological safety as well as an inspirational off-topic lecture and new insights in the use of mixed reality. We have introduced a new hot topic daily slot and a new presentation format consisting of "3 slides in 3 minutes" (3 in 3).

After listening to previous feedback, this time we will offer continuous main stage presentations (keynotes, hot topics and oral presentations) as well as ample choice to follow your favourite tracks through parallel short communications, "3 in 3" presentations and workshops.

All of this would not have been possible without an amazing scientific committee composed of 4 core members (Gabe Reedy, Pier Luigi Ingrassia, Sigrun Qvindelund and myself), 15 associate members and 2 local organising committee members. Each of the 400 abstracts received was anonymised and reviewed by at least 2 independent reviewers. Strict criteria were followed for third reviews and acceptance for presentation. I want to thank them all for their excellent contribution to the scientific rigour of this conference.

In summary, we are hoping you will have the opportunity to join us, participate and network with members of the simulation community from more than 50 countries. And of course, make the best of your visit to beautiful Portugal!



Cristina Diaz Navarro

SESAM Mentoring Programme

Dear SESAM members,

We are excited to announce the launch of the SESAM Mentoring Programme, a working alliance designed to support personal and professional growth, development, and success through career and psychosocial support. The programme aims to build leadership, education, and expertise pipelines by providing the opportunity for mentees to gain exposure and mentorship from senior healthcare simulation experts.

The SESAM Mentoring Programme is a framework for collaborative problem solving and improvement goals over a two-year period. It is open to all SESAM members, regardless of their level of experience in healthcare simulation. The programme provides a unique opportunity for simulationists to receive guidance and mentorship from senior members of the field, and for senior members to give back to the community by sharing their knowledge and expertise.

Mentee and mentor applicants will find their match during the SESAM Mentoring Programme Reception, on the SESAM Annual Meeting, where they can express their expectations and choose the best suitable pair to achieve their goals. The programme is flexible and will allow

mentees to set their own goals, with the support and guidance of their mentors. Mentors will provide career and psychosocial support, advice on navigating the healthcare simulation field, and assist with networking and career advancement opportunities.

We believe that the SESAM Mentoring Programme will provide a valuable resource for the SESAM community, helping to build strong and supportive relationships between members, and providing opportunities for personal and professional growth. By participating in this programme, you will be able to connect with like-minded individuals who share your passion for healthcare simulation, and receive guidance and support as you navigate your career in this field.

We invite all SESAM members to participate in this programme, as both mentors and mentees. Whether you are a junior or senior member of the community, you have something valuable to offer, and we believe that the SESAM Mentoring Programme will help to strengthen our community as a whole.

To participate in the SESAM Mentoring Programme, please register as a mentee or mentor on the SESAM website (<https://www.sesam-web.org>). We look forward to your par-

ticipation and the success of this programme.

See you in the first SESAM Mentoring Programme Reception on June 14th, in Lisbon!!



Gustavo Norte



SiREN (Simulation Research Network) is a grass-roots SESAM initiative, supported by a collaborative group of simulation researchers working at all levels—from novice researchers through to experienced research colleagues. SiREN seeks to leverage the expertise in the European simulation community to build simulation research capacity in Europe. Our aim is to develop a simulation research community of practice (CoP), tailored to addressing the diverse context of simulation across Europe, offering various opportunities for engagement:

- Networking
- Sharing information
- Contributing expertise and knowledge sharing
- Collaborating in multi-centre and/or transnational research projects
- Applying for collaborative research grants

Interested in being part of SiREN? Contact us: siren@sesam-web.org

SiREN @SESAM 2023

SiREN Annual meeting: June 15th, 13h45 – 17h15, Room 3A

Join us at the SiREN annual meeting and be an active supporter of the researchers presenting their simulation research projects (ALERT presentations). Together we will engage in constructive and supportive discussions with experienced simulation researchers. Everyone interested in simulation research and education is encouraged to attend, to network, and to learn with and from their peers.

SiREN Workshops

Interested in developing your simulation research methodologies? SiREN researchers will host three workshops throughout the SESAM programme, to support the growth and impact of your research.

- Walter Eppich and his team will help you "Telling a compelling story to publish your ideas and research: academic writing" (Wednesday morning), and challenge you to "Thinking qualitatively about healthcare simulation research" (Thursday morning).
- Jimmy Frerejean and his team will present and discuss the "Theories in research on simulation-based learning and

instruction" (Wednesday afternoon). Don't miss the opportunity to participate in these engaging workshops.

SiREN Hot Topic: June 14th, 12h-12h30, Auditorium I

Have you heard about SEARCH - Simulation Education And Research Collaborative in Healthcare? Discover this research initiative that aims to establish a European healthcare simulation research community of practice. Join us at SiREN Hot Topic!



Carla Sa Couto
On behalf of SiREN Steering Committee

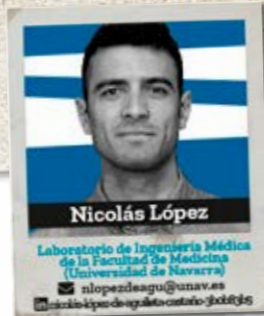


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SIM GEEK



SIMZINE



DID YOU KNOW...



LabIM: ingeniería médica para la simulación

Un laboratorio de ingeniería médica al servicio del Centro de Simulación para resolver problemas y encontrar soluciones que se implanten y usen

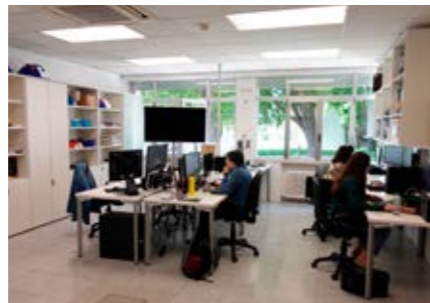
La Facultad de Medicina de la Universidad de Navarra cuenta con un pionero Laboratorio de Ingeniería Médica (LabIM). Creado en 2015, su objetivo es aportar soluciones ingenieriles al entorno sanitario mediante la estrecha colaboración que existe entre los diferentes departamentos de la Facultad, la Clínica Universidad de Navarra (CUN), el Centro de Investigación Médica Aplicada (CIMA) y la escuela de ingeniería (Tecnum). Y esta es la principal fuente de valor del LabIM, el contacto cercano con distintas instituciones de la Universidad y del entorno. Este ecosistema en el que nos encontramos nos permite acceder a los problemas y experimentarlos para entenderlos en el entorno donde ocurren, trabajando de manera cercana con las personas que lidian con ellos proporcionando feedback rápido. **El LabIM tiene 3 líneas de trabajo: simulación médica, cuantificación de variables fisiológicas e impresión 3D.** Cada una de ellas puede estar enmarcada en investigación, docencia o servicio.



Centrándonos en la simulación médica, el LabIM enfoca sus esfuerzos en la resolución de problemas reales, y aunque tiene una parte de investigación, el objetivo principal es resolver problemas y que las soluciones se implanten y usen. Estos problemas o necesidades llegan a nosotros por diferentes vías. La primera es por parte del personal del Centro de Simulación (CSM). Con ellos formamos un excelente equipo y tenemos una comunicación constante. De esta manera pueden trasladarnos las necesidades

de los docentes o de ellos mismos. Otra vía es que los propios docentes o clínicos de la Clínica contacten directamente con nosotros. Y por último, procuramos atender a las diferentes actividades que se desarrollan en el CSM para identificar posibles puntos de mejora desde nuestra perspectiva ingenieril.

Una vez tenemos la necesidad, la analizamos en profundidad: ¿lo que se está buscando es realmente lo que se necesita?, y aunque no parezca obvio ¿realmente es necesario?, ¿hay ya una solución comercial que cubra esa necesidad? ¿Somos capaces de cubrirla?. Estas preguntas determinarán si nos involucramos y empezamos un nuevo proyecto.



Comenzamos asignando una persona responsable dentro del laboratorio y un código ID para seguir toda la documentación y material generado. Se definen las características y requisitos de la solución que estamos buscando y se define un cronograma. En el laboratorio trabajamos en un entorno abierto por lo que todos los miembros hacen las preguntas que estimen necesarias para aportar su punto de vista. Es habitual que en un mismo proyecto participemos varios miembros del laboratorio porque todos tenemos acceso a todos los archivos de los proyectos y a la lista de tareas. Nuestra proximidad permite trasladar nuestros avances y recibir feedback rápido para optimizar tiempo y recursos. Una vez tenemos una propuesta final aprobada trabajamos en su validación e implantación. Además, procuramos sacarle un rendimiento en términos de investigación realizando una publicación o llevándola como comunicación o póster a un congreso. Por último cerramos el proyecto, y esto es importante porque permite que empecemos nuevos, aunque estos sean mejoras del anterior...



Insegnare la Teleassistenza attraverso la Simulazione? Ci pensa BeEmTel!

Il Progetto Erasmus+ Beyond the Emergency dedicato alla simulazione medica e alla gestione a distanza delle malattie croniche

Ha preso avvio il 15 maggio 2023 sulla piattaforma di didattica a distanza gestita da SIMNOVA il Corso online "Management of Chronic Diseases through Telemedicine" ideato per il progetto Erasmus "BeEmTel - Beyond the Emergency. Telecare for Non-communicable disease through Simulation Techniques" (2021-2024). La Partnership è composta da 5 Paesi Europei e 7 Istituzioni pubbliche: l'Università del Piemonte Orientale (UPO-Novara, Italia), che è capofila del Progetto, l'Istituto Superiore di Sanità con il Centro Nazionale di Telemedicina e le nuove tecnologie di assistenza (ISS-Roma, Italia), l'Università Ludwig-Maximilians (LMU-Monaco di Baviera, Germania), l'Università della Tessaglia (UTH-Larissa, Grecia), il Dipartimento per le Situazioni di Emergenza del Ministero degli Interni rumeno (DSU-Bucarest, Romania), l'Università di Medicina, Farmacia, Scienze e Tecnologie George Emile Paladi (UMFST-Targu Mures, Romania) e l'Università di Scienze

Mediche Applicate (ZVU-Zagabria, Croazia).

Il Progetto ha preso avvio nel dicembre 2021 e dopo 20 mesi di attività ha organizzato due eventi moltiplicatori online che hanno avuto largo seguito tra studenti e coinvolto vari



stakeholders tra enti universitari, associazioni di settore, fondazioni e società private operanti nel campo della Simulazione Medica e della Telemedi-

cina, come ad esempio la Fondazione Santa Lucia di Roma, Istituto Maugeri di Brescia, l'azienda tedesca Cosinuss, la multinazionale CISCO.

I pilastri su cui poggia il progetto di alta formazione europea BeEmTel sono il Centro di Simulazione novarese SIMNOVA dell'Università del Piemonte Orientale e l'Human Simulation Centre dell'Istituto di Medicina di Emergenza presso la Clinica universitaria dell'Università Ludwig-Maximilians di Monaco, dove si svolgeranno, tra febbraio e marzo 2024, due settimane immersive riservate a un gruppo selezionato di 50 studenti. Sarà una selezione veramente ardua per la Partnership visto l'alto numero di adesioni entusiastiche che l'e-Course ha raggiunto dai 5 Paesi europei.

Per i motivi che sono a disposizione più di 50 docenti per lezioni tradizionali a distanza e speciali video in Telesimulazione. Alcuni docenti hanno interpretato in maniera creativa e innovativa la Telesimulazione, un metodo di insegnamento a distanza che la pandemia da Covid-19 ha portato alla ribalta nelle più prestigiose università, e che BeEmTel ha declinato secondo i principi di inclusività, efficienza ed economicità...





Virtual reality vs silicone inserts in laparoscopic training

Apex Pro features a hybrid approach to laparoscopic surgery simulation. And its use revealed important findings about novice and experienced surgeons' training preferences.

The path to professional excellence can be a bit like a lifelong pilgrimage to the peak of a distant mountain. It can be difficult to predict the challenges that the road will bring on the way. The only thing you really know is that your goal could be many years or even decades away. This is something we see in ourselves in our work with surgical simulation. And it is something we saw recently, in January 2023 with the team of pediatric surgeons in Wrocław (Poland).



An experienced pediatric surgeon practices an Esophageal Atresia Repair exercise on her own in a surgical ward break room. With hundreds of real-life surgeries under her belt, she is particularly interested in performing a complex anastomosis maneuver.

In our time at the hospital we presented surgical trainees with Apex Pro. What differentiates our device is that it features a hybrid approach. Apex Pro includes both virtual simulations of procedures and exercises with physical modules. This hybrid approach to teaching could be a revolution to surgical simulation training. It provides a great alternative to the existing virtual reality training systems and methods.

Pediatric surgeons often spend half their careers waiting to perform certain procedures. The stakes with pediatric patients are so high, that it is usually only the most experienced specialists who are allowed to perform them. This creates a gap. Experienced surgeons in the middle of their careers become frustrated when they realize that they have so much further left to go. They realize that they are expected to sit and watch until it is finally their turn.

Laparoscopic surgery is a beneficial approach to surgical interventions for pediatric patients. It reduces the amount of post-operative pain and scarring. It also allows for quicker re-



The trainee is instructed to identify specific anatomical landmarks in a simulation of esophageal atresia repair; a rare congenital malformation. This procedure is normally performed only by the most experienced surgeons.

covery and is less traumatic. Children simply get to return to being children sooner. However, laparoscopic surgery is also difficult to train for surgeons. It requires a high level of precision and manual dexterity. The approach also requires the use of specialized instruments. And these are even smaller than the ones found in standard adult laparoscopic proce-

dures. This is made even more difficult as the surgical procedures themselves are complex. In our time at the hospital with the team we learned several important facts about pediatric surgeons and simulation that we wanted to share here:

Experienced surgeons prefer to train alone rather than with a team. They know what they want to do: these surgeons preferred our silicone procedural inserts and modules. They found them more rewarding than our virtual reality experiences. The experience gave them the opportunity to practice the

maneuvers they already use in the operating room.

Younger, less experienced surgeons found virtual reality to be more useful. Especially for learning the structure and anatomy of a procedure. The procedural silicone models had a lower utility for novices because their skills were not as developed. Virtual reality gave inexperienced surgeons a chance to refine their knowledge. They developed an improved understanding of the different aspects of the procedure.

Virtual reality experiences are far better for training teamwork. Especially for the novices, although this was found to be true for both advanced and less experienced surgeons. Virtual reality gives them the opportunity to practice working together. It allows them to make decisions together, communicate more effectively. It also allows them to



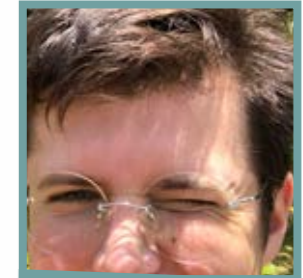
Three novices interact with a laparoscopy simulation in a university hospital lecture hall. The simulation requires them to communicate with each other and collaborate to execute all of the steps in a laparoscopic cholecystectomy. After only 15 minutes they are fully engaged as a team, giving each other orders, laughing and arguing.

practice different situations and scenarios that they may not have been exposed to in the operating room.

Real touch module-based exercises are perfect for developing individual psychomotor skills such as suturing and instrument handling. Those are appreciated both by experienced surgeons and trainers. The virtual procedure scenarios on the other hand, are perfect for improving teamwork dynamics. And they also help develop a deeper understanding of specific surgical procedures. The generation of new surgery entrants take this kind of training with enthusiasm. This hybrid approach delivers the best of both worlds to trainees and trainers.

In our work on our device, we see

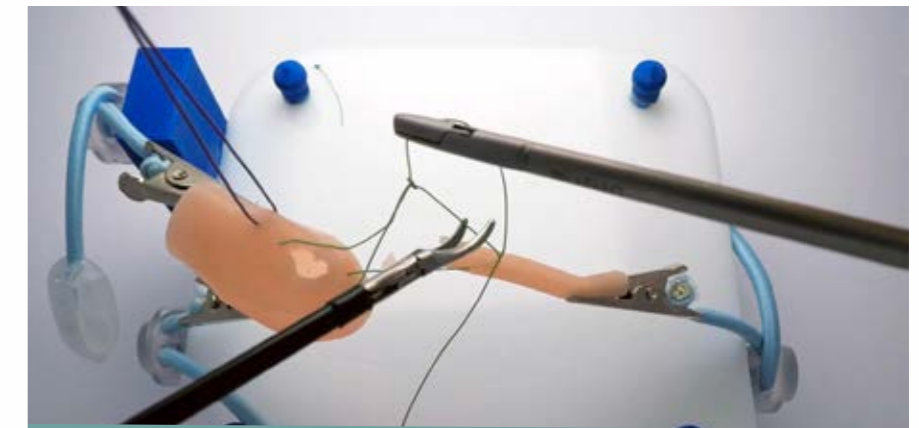
that the peak remains distant. Simulation for pediatric laparoscopic surgery is still a niche. But the potential cannot be understated. Whether it be through the use of silicone models, virtual reality, or team-work training, simulation can provide invaluable experience and knowledge to help surgeons become the best they can be before they have to carry all of the responsibility on their shoulders. Through simulation training, surgeons can gain the confidence and expertise they need to succeed in the operating room.



Zachary Migurski
Product Manager, Laparo Sp. z o.o.



Karolina Lipinska-Kowalkow
Business Development Director, Laparo Sp. z o.o.



An experienced pediatric surgeon practices the first knot of a Hynes-Anderson anastomosis. This is a complex suturing maneuver which must be performed in a pyeloplasty. The procedure is performed to treat uretero-pelvic junction stenosis.

Content written in collaboration with Laparo



APEX PRO
The Future of Surgical Training



DID YOU KNOW...



Safe Simulation: First Do No Harm

Accidents related to simulation activities have occurred and are a challenge to those practicing in the field. Formed in 2015, Foundation for Healthcare Simulation Safety promotes awareness and sharing of incidents and safe practices related to mitigating simulation risks and hazards.

Simulation has become an integral part of healthcare education and is intended as a safe way for learners to practice skills, decision-making, and teamwork. However, the intersection of the simulated with the real worlds can introduce unexpected risks to the safety of patients, learners, educators, and staff. Accidents related to simulation activities have occurred and are a challenge to those practicing in the field. The most serious, to our knowledge, was an incident in 2015 in the US where simulated IV fluid was inadvertently supplied to an outpatient surgery clinic. At least 40 patients received non-sterile tap water intravenously, resulting in serious illness and one death. As a result, the US Food and Drug Administration issued labeling requirements for commercially produced simulation supplies.

safety.org) has operated since as a not-for-profit volunteer run organization attempting to assist the community to practice safe simulation.

Early on, we realized that a standard recognizable label for simulated equipment and supplies would be helpful. This label was intended to provide a clear visual cue that would become universally recognized, similar to the poison warnings of a skull and crossbones. A template for this

team spent an hour searching the hospital for a patient in arrest reported to the hospital operator from a simulated event. 2) Physical injuries such as a trainee injecting adrenaline into his own thumb by holding the injector pen backwards. 3) Visitors becoming upset, frightened, and calling the sheriff's department when witnessing a simulated active shooter drill, believing that an actual emergency was occurring. 4) Patients were evacuated from a medical center after a drill was accidentally announced as a real event.

In 2018, an editorial on this topic, *Simulation Safety First; An Imperative*¹, was published simultaneously in *Simulation in Healthcare*, *Advances in Simulation*, and the *Journal of Surgical Simulation*. We are grateful to our colleagues for translating the

editorial in Spanish and Portuguese. The translations are posted on our website.

We encourage simulation educators everywhere to adopt practices to mitigate the risks of harm from simulation training. The Simulation Safety Pledge is a good place to start making your training practices safer.



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Solo Uso Educativo

label can be downloaded from the FSSH website for printing with a color printer on standard label stock.

In addition to the labels, FSSH has been trying to increase awareness by publishing anonymized anecdotes of simulation incidents. We welcome sharing of any accident or near-accident experiences and will post them for others to benefit. **Almost everyone practicing simulation seems to have a story, and we believe that by sharing these, we can increase appreciation of the hazards and help others to avoid future accidents.**

Some examples described to us include: 1) Unplanned activation of emergency response teams, such as one hospital whose cardiac arrest

1. Raemer D, Hannenberg A, Mullen A. *Simulation safety first: an imperative*. *Adv Simul (Lond)*. 2018 Dec 10;3:25

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A conversation with Walter Eppich



Walter Eppich tells us what it means to be a simulation researcher and more



This time we had a chat with Walter Eppich and asked him our 10 get-to-know-you + 1 questions. And we found out that, before becoming a pediatric emergency medicine physician, he wanted to be an interpreter working at the United Nations. Of his job he

loves the fact that there is no "typical day" but that every day is different: in his spare time he manages to combine walking with listening to audiobooks. After a PhD in Health Professions Education and many years as a simulation researcher, he went all the

way to Antarctica to study team dynamics in extreme environments.

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



What Does it Take to Create Great Scenarios?

Writing the perfect simulation scenario is not an easy task: Alex Clark explains the best way to deal with it.

The quality and control of the design of a scenario is at the heart of the consistency and quality of simulation-based education (SBE). It's really simple, everything flows from the scenario design. So, it must be great and manageable!

Most Sim Centers have defined Manikin- and SP-based Scenario templates, but often local versions/inconsistencies exist. Once a scenario is completed, where are masters held? And how are changes managed, and updated to Facilitator, SimTech and system files? These challenges make consistent delivery across multiple sites hard. Another pain point is the sheer effort to write scenarios and programme the equipment. Scenarios are complex human/technical processes that require detailed and robust design and management processes. Last, but not least, frequent reinvention of the same Scenario is commonplace simply because sharing and collaboration are just too hard.

However, the Societies (INACSL, SSH, SESAM, ASPiH, etc.), provide best practice frameworks and guidance for all aspects of SBE. And, given its central role, scenario design best practice is well defined. So here are our key insights on how to best design magical Scenarios.

Magic Starts with Best Practice

The best route to high quality Scenario Design is to standardize and optimize your scenario design Templates! The Societies have codified and shared hundreds of years of Sim experience. Ensure your Templates¹: reflect best practice, and² make it super-easy for Teams to apply the guidance.

Scenario Objectives and Golden Path

As Stephen Covey¹ said: "Begin with the End in Mind". Great objectives married to crystal clear educational

needs are the foundation for a magical SBE and Learner journey, but patient care requires rapid decision-making, every day. So it can be instinctive to quickly jot down the scenario needs and objectives. Instead, ensure you can clearly see the required Learner thinking, process, decisions, actions, etc., and, as Ann Sunderland² describes, the "Golden Path", or ideal route, to achieving the objectives.

Build Out the Scenario Design

Great objectives and the Golden Path make the rest of the design easy, namely:

Scenario Setup

- Roles Needed – the patient to be treated, their presenting history and other known information for the learner briefing. Consider parent/partner/other roles, and the delivery and clinical (learner) teams involved in the scenario.
- Setup the Scene – for example, a manikin patient in an acute ward

setting and associated monitors. Define other detailed setup such as moulage, respiratory equipment or medications. Consider checklists for all areas, and pictures of the setup so it is easy to re-run.

Design of Scenario States

Start with the baseline state, the initial condition of the patient and the vital signs and assessment information. Add other information like behaviour of roles, distractors, arrival of diagnostics, protocols, expected outcomes. Use the Golden Path to now add:

- States based on expected interventions, such as "Improvement – fluid bolus given"
- States based on realistic deviations, such as "Deterioration – fluid bolus not given"

Debriefing –the Magic Realised

Facilitators make it safe and positive for experiences to be shared. Learning becomes conscious. The Golden Path becomes clear, and we can choose to run again if needed for skills and confidence. Adopt and build skills in a proven framework (PEARLS, DASH, 3D, etc.). Resources and training are available so you can maximise simulation learning for participants.

Inter-professional Working Made Easy

One last point! Scenario Design is Inherently an Inter-professional Activity, with Simulation-based Educators, Subject Matter Experts, Simulation Technicians, Facilitators, etc.. Each brings their expertise and ideas to the Scenario Design process. There is always a Team which needs an easy way to work together in shared scenario documents and resources, to Chat and discuss, to agree readiness, etc.. Easy co-working is a real priority for all SBE.

Final Thoughts about What Next

So what does the future hold for Scenario Design given the advances in technologies, greater collaboration, and the drive to increase Patient Safety? Increasingly sophisticated manikins, immersive technologies, VR etc. add more and more value, so easy and pervasive Scenario Design, collaboration and sharing within and across organisations and wider is key:

- Easy alignment with the Standards to deliver high-quality SBE every time
- Greater re-use of existing Scenarios, versus reinventing the wheel
- Easier and better management of

each Scenario – accessible, maintained, high quality.

The iRIS Simulation Platform condenses our 10+ years of experience supporting SIM centres to create high-quality scenarios. iRIS started with the vision of Dr David Grant, and now reflects the generous feedback of hundreds of simulation educators, insight from societies, and our ideas.



Alexandra Clark
Founder and Product Director iRIS Simulation Platform

1. Stephen Richards Covey was an American educator, author, businessman, and speaker. His most popular book is *The 7 Habits of Highly Effective People*
2. Ann Sunderland specialises in clinical skills and SBE across the range of healthcare professions.



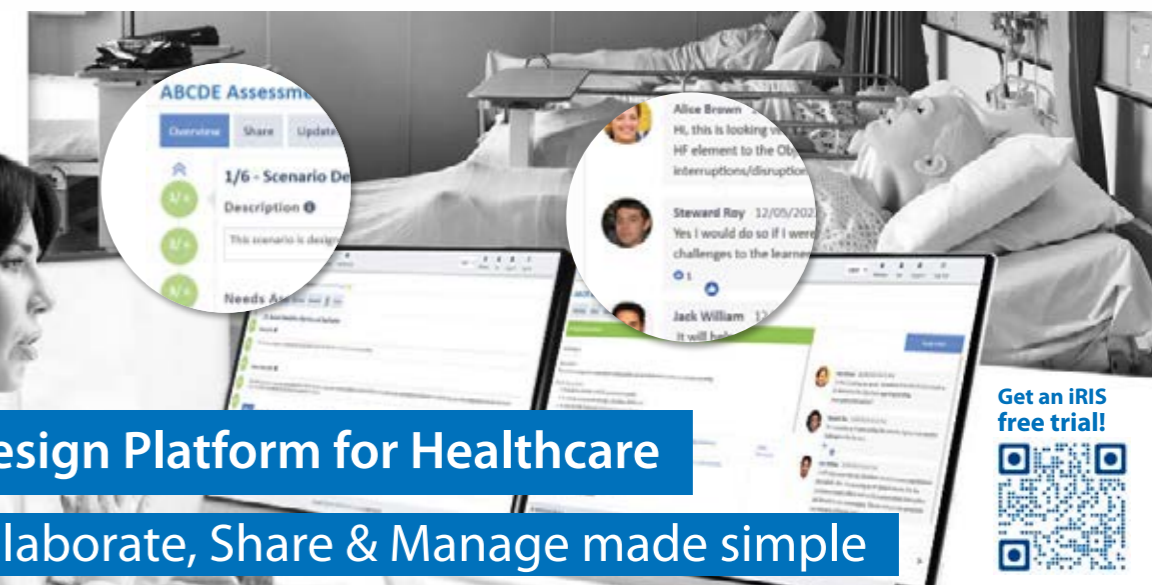
Content written in collaboration with iRIS Simulation Platform



For the community by the community

iRIS - Scenario Design Platform for Healthcare

Design & Run, Collaborate, Share & Manage made simple



Get an iRIS free trial!





The use of Virtual Patients in Medical and Nursing education

Simulation-based Learning and Assessment with Virtual Patients promote students' clinical reasoning and decision-making skills

Virtual Patients have become increasingly popular in Medical and Nursing education due to the recognized advantages over traditional teaching methods. As an interactive tool, they allow students to practice clinical skills in a safe and controlled environment without the risk of harming real patients. At the same

time, they represent a cost-effective, time-efficient, and customizable approach suitable to the Institution's curriculum and students' learning objectives.

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La seguridad clínica como asignatura transversal en Grado.

Álvaro Trampal Ramos, alias @enfermerodesimulacion, nos habla de la importancia de inculcar el principio de la seguridad clínica a partir de los estudios de Grado en enfermería.

La seguridad clínica es la "piedra angular" de nuestro trabajo en el mundo de la simulación médica. Todos conocemos el estudio "To Err is human" o los datos de la publicación de 2013 de Journal of Patient Safety donde nos indica que los errores médicos son la tercera causa de mortalidad en Estados Unidos. ¿Sabías que es más peligroso entrar en el hospital que hacer puenting? Ante estos datos tan abrumadores, ¿por qué no profundizamos más en la seguridad clínica? ¿por qué no entrenamos más? ¿Por qué no generamos la cultura de la seguridad clínica desde el primer día en la Universidad?

En muchas ocasiones, esa formación en seguridad, la asociamos a formación de postgrado, en cursos de experto, máster o formación continuada, pero yo me pregunto; teniendo la oportunidad de formar en seguridad desde la Universidad, ¿por qué no aprovechamos la oportunidad de formar a nuestros alumnos en seguridad clínica de forma transversal en Grado?

Debemos tener claro que los eventos adversos no se producen por falta de conocimientos: el 70-80 % de los eventos se asocia a fallos de comunicación. Entonces, conociendo los datos tan abrumadores, ¿por qué no entrenamos más las habilidades de comunicación, roles, liderazgo, etc.?

Cuando diseñamos los escenarios de simulación con los alumnos de grado de enfermería, nos centramos en muchas ocasiones en habilidades técnicas; canalizar un acceso vascular, un sondaje o simplemente cuidados básicos cómo hacer un encamado, dejando a un lado las habilidades no técnicas. ¿Por qué no integramos la seguridad clínica en los escenarios desde primero de Grado?

En muchas ocasiones no le damos a la seguridad la grandísima importancia que tiene en la formación de Grado o simplemente, nos centramos

en competencias básicas de un futuro enfermero y no sabemos cómo integrarlo dentro de los escenarios de simulación. Vamos con algunos ejemplos de cómo aplicar de forma transversal la seguridad clínica en todos los escenarios de Grado de enfermería:

- Paciente que se hipotensa y es necesario informar al médico. Po-



demos utilizar la llamada de teléfono que realiza el estudiante de enfermería al médico para entrenar e integrar el traspaso de información utilizando la herramienta SBAR por ejemplo.

- Utilizar los puntos del CRM (Crisis Resource Management) en los escenarios de simulación y que los alumnos vean la importancia de conocer el entorno, pedir ayuda, liderazgo, comunicación eficiente, etc.

- Introducirles la importancia de un briefing de equipo al inicio de la jornada laboral.

- Recrear escenarios quirúrgicos y aplicar el "Check list quirúrgico", herramienta que ha demostrado salvar vidas y evitar los eventos adversos en el quirófano.

- Como he dicho en muchas ocasiones, menos es más, hay escenarios que no deben ser complejos y con una higiene de manos correcta, la identificación correcta del paciente, comprobar los 10 correctos de la

administración de un fármaco, etcétera, ya estamos inculcando las buenas prácticas y la seguridad. Podemos poner carteles por el Centro de Simulación con los pasos del SBAR, la imagen del Team Stepps, etcétera, con el objetivo de familiarizar a los alumnos en estas herramientas y las integren en su día a día.

Hoy en día tenemos muchas herramientas que podemos aplicar en los escenarios de simulación a lo largo de los años de Universidad, herramientas como el "TeamStepps", NEWS, Huddle y un largo etcétera.

Los profesionales que nos dedicamos a la simulación en las carreras de Grado tenemos la gran oportunidad de sembrar la semilla en los alumnos de la seguridad clínica, con el objetivo final que los alumnos terminen la formación Universitaria con una cultura de seguridad que puedan aplicar desde el primer día en sus centros de trabajo y poder disminuir los eventos adversos y salvar vidas...

Como docentes, tenemos en nuestras manos la oportunidad de salvar vidas a través de nuestros alumnos.

¿Te gustaría saber más? Encuentras más información en el video Instagram de @enfermerodesimulacion. Escanea el código QR para visualizarlo.



Team STEPPS
Team Strategies & Tools to Enhance Performance & Patient Safety

Content written in collaboration with Take The Wind



What To Do About Virtual Patient Encounter Training?

Use of virtual patient encounter training is becoming increasingly popular in health profession education. However, there is a limited understanding of its effectiveness. Our panel of experts discusses how to best use this new technology while overcoming limitations and driving innovation in healthcare training

The debate

Virtual reality has been talked about for many years now; however, recent advances in technology have made it the exciting and emerging field it is today. Its applications are vast, ranging from military training to gaming. In healthcare education, VR technology is gaining more prominence, becoming a new focus of direction in the development of training tools for all types of users, from students to professionals. More and more medical and nursing schools and healthcare institutions are implementing Virtual Patient Encounter training to enable repeatable immersive simulations that bring invaluable practice. In fact, numerous studies already indicate that VPE technology is a pow-

erful tool for teaching, mainly because of its ability to provide immersive, multi-sensory and realistic teaching environments, among other features. Recent studies also show that, once upfront costs are covered, the cost of adapting and scaling up can be low.

Despite the benefits of using VPE in healthcare education, some challenges and limitations result in the misuse of this technology. For SIMZINE's new regular feature, our editor-in-chief (and curious about new technologies) Pier Luigi Ingrassia asks our panelists: for which training purposes is VPE useful and for which not? How to fit VPE training into an existing curriculum? Does VPE training require special trainer skills? And more.



Pier Luigi Ingrassia



Emilia Turucz

Consultant Emergency Physician, PhD, Lecturer at the University of Medicine, Pharmacy, Science and Technology "George Emil Palade" of Targu Mures, Romania, Coordinator of a Virtual Reality Simulation Expert Team belonging to The National Simulation Centre for Emergency Situation, Romania.



T.W. (Dennie) Wulterkens

Registered Nurse (since 1981), specialized in Prehospital and Clinical Emergency Medicine, Medical Simulation, Crew Resource Management, ERC-Educator, Managing Director of QT Time (professional medical training institution)



Mark Weinert

Doctor from the last millennium, with a passion for teaching and an avid interest in exploring new technology to enhance the learning experience. His clinical background is Anesthesiology, Intensive Care, and Emergency Medicine, he is also a co-founder of StellDirVor. Mark's focus lies in patient safety, communication, and simulation

Let's start in general: what training purposes is Virtual Patient Encounter (VPE) good for and what should you not try to achieve with it?

Emilia Turucz: Virtual Patient Encounter (VPE) is a perfect tool to ex-

pose my trainees to different pathologies and medical situations in a very realistic manner, using this high-fidelity visual presentation of a patient exposed in a lifelike medical environment. Interacting with medical cases in a virtual environment excludes

any potential harm for patients and trainees, which might occur during a teaching process conducted in a real medical ward. Virtual Patients can demonstrate the consequence of any good or bad medical management, allowing trainees to learn from their

mistakes and consequently face the result of their decisions. In terms of teaching efficiency, the visual impact offered by a virtual patient and the interaction with it in a fully immersive lifelike medical working environment brings this type of exposure very close to the level of a real professional



experience. Nevertheless, VPE cannot reproduce all the perceptions offered by an interaction with a human being, and its use for learning physical examination and technical skills is still limited.

Dennie Wulterkens: I think VPE is very useful for small scale simulation e.g. procedures and working with protocols in stressful or cluttered situations. By confronting the student with a patient, surrounded by all available means and materials,



the student has to interpret the situation and clinical findings, related to the actions needed. Besides that, you can place a student in a surrounding to learn how to adapt to the environment. Especially when you place the

student in a progressively changing situation. Therefore, it is a right tool for self-reflection for the student, reflection by the instructor(s), judging and/or taking exams. The latter one specifically because you can place every student in the same environment with the same variables.



My personal experience has learned that VPE should not be used for clinical skills, e.g. IV placing or airway management. Major important features in medical training such as inter-human behavior and Crew Resource Management can only be introduced if facial expressions of the avatars and specific body language can be well integrated into the scenarios.

Mark Weinert: VR/VPE training is well suited for medical education purposes that require the development of clinical reasoning and decision-making in a safe and controlled environment. For example, it can simulate complex medical procedures, teach communication and teamwork skills, and provide opportunities for deliberate practice and feedback. However, VR training is not suitable for all medical training purposes, such as those that require a more hands-on, tactile approach, or those that involve patient interactions that cannot be fully simulated in a virtual environment. Think of classical skill trainers where you train hand-eye coordination, like ultrasound-guided cannulation, or cricothyrotomy. We will see what the future brings. Real tactile feedback is far away now. I see olfactory feedback in the near future. The smell of blood, for example, elicits fear and arousal in seconds, even if not recognized consciously.

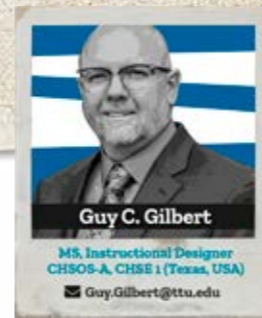
How to fit VPE training into an existing curriculum?

Dennie: In my opinion we learn in different layers: theory – skills – scenarios – simulation. The first three are integrated in every "Life Support"-course mentionable. For many medical occupations a combination of Life Support courses is mandatory. By integrating VPE in these courses a more realistic environment, patient encounter and adjustable surroundings can be introduced. Therefore, the courses will become much more attractive. And because of the mandatory aspects it will become part of the curriculum.

One of the challenges within continuous education is to keep medical professionals motivated between the initial courses and the refresher courses. This can be well stimulated by offering scenarios that can provide challenges, substantive deepening and examination that forms the logical step to a next course. Motivation can be improved by accreditation of every single scenario that is run by the student. If possible a stand-alone or remote device can offer the opportunity to practice at any convenient time or place even with an instructor on a remote distance.

Mark: Different ways to integrate VR training into an existing curriculum exist. First, like with every new tool in the toolbox, it's important to identify the learning objectives the VR training intends to achieve. And this is the most important step. There is no use to force a square into a hole, just because I want to use the technology, but the learning objective does not match the vehicle. Then it's necessary to identify which parts of the curriculum could be replaced or supplemented with VR training to achieve these objectives. Finally, VR training should be integrated into the curriculum seamlessly, not disrupting the flow of learning. What do I mean by that? Start with one clearly defined goal and learning objective with the right tool and then expand on that. VR Training is here to add to the tools we have, not to replace them...





Videograbaciones: una herramienta de autoevaluación, evaluación y debriefing

Desarrollando habilidades: cómo lograr mantener, modificar y/o eliminar acciones en dinámicas de trabajo

Cuando un participante/alumno finaliza una simulación clínica sale de ella con un conjunto de sensaciones y percepciones que no siempre coinciden con las de los observadores y/o evaluadores. Cuántas veces habremos dado por hecho que hemos realizado acciones que en realidad se nos han olvidado hacer o las hemos hecho del modo que no esperábamos sin ser conscientes de ello.

Ante situaciones así, visualizarse a uno mismo en vídeo tras ejecutar cualquier tipo de role play permite analizar todo aquello realizado en el momento de tomar decisiones según el contexto en el que se encontraba, y es entonces cuando reconoces acciones acertadas, mejorables y/o ausentes.

Aún así, no siempre tenemos la capacidad de detectar todo aquello bien ejecutado que debemos mantener, mal ejecutado que debemos cambiar o dejar de hacer, incluso no realizado que debemos esforzarnos en incorporar, y para ello la figura del evaluador o instructor es la que nos guía cuando no somos capaces de notar mejoras y quien nos dirige hacia esas habilidades a desarrollar según nuestra ejecución en la simulación.

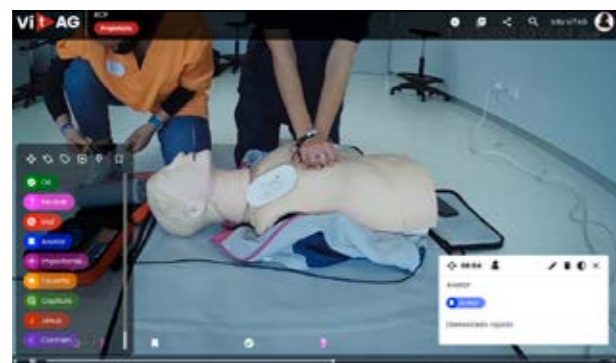
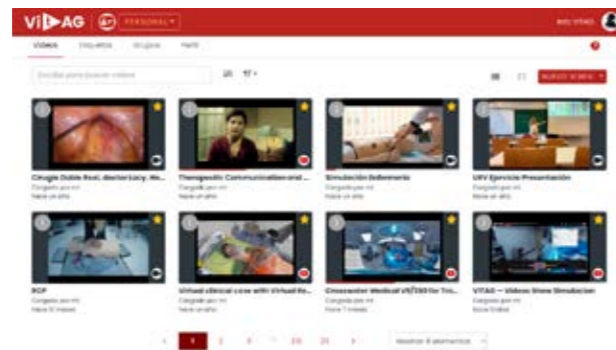
Para lograr todo esto, el vídeo es la herramienta clave y su gestión es un aspecto importantísimo presente en todos los escenarios. Basado en estas premisas nació ViTAG.APP, una plataforma online de catalogación, interpretación humana, etiquetado y compartición de vídeos y datos de forma segura y fácil, por la que algunos centros de simulación de España ya han empezado a apostar.

Todo vídeo puede ser gestionado a través de la plataforma de modo que éste pueda ser compartido, de forma segura y cumpliendo con la normativa vigente, con los usuarios deseados: sólo al usuario sujeto de la grabación, usuario + instructor, sólo instructor, grupo completo de la sesión... todo según la necesidad concreta y objetivo a perseguir.

Una vez los usuarios tienen acceso al contenido, éste puede ser configurado sólo como lectura, evaluación compartida o individual. La evaluación consiste en el

etiquetado sobre la línea temporal del vídeo, siguiendo una rúbrica/ítems evaluativos previamente configurados.

Todo ello permite un sinfín de posibilidades: compartir con participantes y/o evaluadores vídeos de simulaciones, clasificarlos y tenerlos como repositorio para consulta a futuro, compartirlos sin etiq



etiquetar por el instructor pero con la posibilidad por el estudiante de poderse etiquetar a sí mismo para que el instructor pueda valorar y detectar cómo el propio participante se ve y qué detecta sobre su actuación (interesante para debriefings a distancia o asíncronos), compartirlos etiquetados para que el participante visualice las anotaciones y evaluaciones del instructor a modo corrección, compartirlos con un grupo de participantes para que entre ellos analicen y etiqueten (o no) de forma conjunta sobre un mismo vídeo, compartir vídeos con investigadores, sin identificación de los sujetos de grabación, para la obtención y análisis de datos objeto de estudio, que los participantes suban sus propios vídeos para compartirlos y que sean evaluados por ellos mismos, entre iguales o por el instructor... y un sin fin de fórmulas cuyo límite radica en la imaginación de cada centro.

Todo ello...
- Centralizando y organizando los vídeos en una única plataforma accesible desde cualquier dispositivo y lugar, sin necesidad de subir los vídeos a servidores externos al centro.

- Etiquetando los vídeos con información relevante (como título, descripción, categoría, fecha, autor, etc.) y con marcas temporales que señalan los momentos clave o las acciones realizadas. Las etiquetas facilitan la búsqueda y el filtrado de los vídeos según diferentes parámetros...



etiquetar por el instructor para una autoevaluación del participante para que pueda realizar un debriefing más enriquecedor tras verse a sí mismo, compartirlos sin

Chat GPT for Diversity, Equity, and Inclusion in Simulation

How can ChatGPT be used to support Diversity, Equity, and Inclusion in Simulation? This article explains how to create realistic patient profiles leveraging the AI



Introduction:

Creating realistic patient profiles that accurately reflect the diversity of real-world patient populations can be challenging. Through the use of a tool such as ChatGPT (Generative Pretrained Transformer), it is possible to create a patient profile that is an accurate and inclusive representation of a person belonging to a particular demographic. ChatGPT is a language model, which can be used to generate simulated patient profiles that accurately represent real-world populations. This article will explore the benefits and opportunities of using ChatGPT to produce statistically accurate patient profiles based on data that is readily available and with the focus on introducing more diversity in healthcare simulations for the development of cultural humility among learners.

Benefits and Opportunities:

ChatGPT can generate simulated patient profiles that can be used in simulation scenarios to accurately reflect the diversity of real-world patient populations. It can be prompted to utilize resources such as the National Institutes of Health (NIH) and World Health Organization (WHO) and can produce patient profiles that include identifiers such as age, disability, ethnicity, family or marital status, gender identity or expression,

language, national origin, physical and mental ability, political affiliation, race, religion, sexual orientation, socio-economic status, vocation, veteran status, criminal status, among others. This allows simulation educators to develop scenarios and cases that more accurately depict patients belonging to a particular demographic.

Other opportunities are opened up through the use of ChatGPT-generated patient profiles. Learners can gain exposure to a wide range of patient populations and develop the skills needed to provide culturally competent care. For example, a simulation-based experience can be developed with a scenario whose patient is a part of a medically-underserved community. ChatGPT can generate an accurate patient profile for someone in that community and the scenario will be developed around that profile. Specific learning objectives can be expressed in the scenario as well based on the learner type.

Examples of ChatGPT-generated Patient Profiles:

The authors generated multiple patient profiles based on different prompts given to ChatGPT. The detail of the response given by ChatGPT depended on the quality of the prompt. ChatGPT was prompted to use statistics provided by reputa-

ble sources such as, but not limited to, the World Health Organization, U.S. Census, and the National Institute of Health. ChatGPT was asked to generate a patient's chief complaint, physical characteristics, past medical history, sexual history, surgical history, insurance status, etc. In addition, a list of sources in APA format was provided. For example, we would ask ChatGPT to generate a patient profile a patient that:

1. Lived in rural West Texas
2. Belonged to a medically underserved demographic
3. Was seeking healthcare in a primary-care setting

ChatGPT took less than one minute to output a full patient profile that included the patient's demographic, full medical history, and a summary of the patient's profile. What we found very useful was the list of resources that ChatGPT used. We did notice, however, that some references were output incorrectly and had to be manually verified and adjusted...





An interview with President of SSSH, Abdulaziz Boker

We recently had the pleasure of sitting down with Prof. Abdulaziz Boker, President of SSSH, to discuss his presidential priorities and gain an understanding on varying issues related to simulation in Saudi Arabia.



Abdulaziz Boker

Professor, consultant and chairman of Anaesthesiology & Critical Care, College of Medicine, at King Abdulaziz University, he is current president and chairman of the Board Directors of the SSSH. Past Chairman of the Scientific Board of Anaesthesia and Critical Care at Saudi Commission for Healthcare Specialties and one of the Past Chairman of Anaesthesia & Critical Care Examination Committee at Arab Board. He received several awards both for his personal and professional outstanding results, as well as for the excellence achieved by the Clinical Skills and Simulation Centre at King Abdulaziz University in (CSSC-KAU) which he founded in 2008.

✉ bokera@hotmail.com
📍 in/abdulaziz-boker-52009315/

SIMZINE keeps on exploring and sharing views and ideas of the leaders of simulation professional and scientific societies. Today we talk with the President, and founder, of the Saudi Society for Simulation in Healthcare (SSSH), Prof. Abdulaziz Boker. For over 20 years, he has been very actively involved in medical simulation-based education at local, regional, national, and international levels. He established the King Abdulaziz University Clinical Skills and Simulation Center in 2008, and he counts multiple publications in the field of medical education and healthcare simulation. Given his outstanding record as simulation educator, he received awards from the International

Association for Health Professional Education (AMEE), the Royal College of Physician and Surgeons of Canada, and the Society for Simulation in Europe (SESAM)

Welcome Prof. Boker. And thank you for sharing your time with our readers. Let's start easy. Why are you pas-

sionate about simulation?

I appreciate the opportunity to take part in this interview. This is an extremely challenging and thought-provoking question. Why am I passionate about simulation? For me, it is an area where you can combine your passions for education and clinical medicine, as a clinician to provide education and training to future generations, as well as a safe and healthy working environment for patients. Healthcare simulation has been used for over 20 years, and it has always been thought-provoking, engaging, and a great way to improve at the individual, organizational, and institutional level. The fact that this can save one life is enough, but in my humble experience, it has happened on numerous occasions.

What aspects of your role as President of the SSSH have you enjoyed so far?

It was a real pleasure to formulate the foundations of the society. Creating the society began as an idea and evolved into a concept. The next step was to get people to work together, unify agendas and strategies, develop them, and then put them into action. Obviously, we had to work with many leading societies around the world for this, such as Society of Simulation of Healthcare (SSH) in the US, SESAM in Europe, and PASHH in Asia. Through gathering the experiences of these societies, we developed our national society's momentum from an international perspective. As a result, we



have been able to begin where others have ended. Also, I enjoy spreading these learned lessons to other local, regional and international simulation centers, programs, and educators.

How do you manage to balance the SSSH activities with other professional duties and with your private life?

What do you mean by private life? It's all work, work, and more work. There is no private life, no social life. Just kidding. There is no doubt that balancing social life and professional duties is very important. As a practicing anesthesiologist, professor in the college of medicine, and supervisor of our simulation center, my priorities are always self, family, and job responsibilities. Prioritizing my family's responsibilities is one of the most important things to do as part of my regular jobs. On top of that, I

also have to devote and dedicate time to professional duties related to my community on a voluntary basis.

What are your main objectives for the current mandate as SSSH President?

A current objective of the SSSH President is to establish the Society's bylaws and to adopt them to evolve local policies and regulations according to Saudi Arabian laws. The society is, currently, regulated by Saudi Commission Societies of Health Specialties (SCFHS) by-laws. Hence, setting up SCFHS-Integrated membership system, dynamic website, as well as working with the board of directors team, and members at large, to formulate a five-year strategic plan is a very important part of the mandate for the current inaugural SSSH cycle.

How would you define the state of

the simulation in your country?

As a developing country, simulation has grown tremendously in Saudi Arabia. This growth is witnessed in simulation uses in terms of variety, scope, and dissemination. Many governmental agencies are now utilizing simulation-based education, especially after the COVID-19 pandemic. Currently, most health colleges offer simulation-based training as part of their programs, as do several post-graduate programs at the national level, including fellowships and residency programs...



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La simulación desde el punto de vista técnico: el enfoque MOTIVA

La experiencia de MOTIVA en el uso y la gestión de un centro de simulación basado en tecnología

El diseño y creación de un centro de simulación virtual es siempre un foro de debate en el que cada especialista sanitario desea ver representada su área de actividad clínica. En estos casos, pensar desde un punto de vista tecnológico podría hacer converger todas las áreas clínicas en un espacio de simulación común y de utilidad para todas las especialidades sanitarias. Nuestro modelo, denominado MOTIVA, propone un enfoque de cooperación en educación sanitaria basado en la tecnología y en su transversalidad, y supone un ejemplo de centro de simulación virtual que ocupa todos los eslabones de la cadena de formación sanitaria: estudiantes, residentes y especialistas.

¿Qué es MOTIVA?

MOTIVA (www.motivando.me) es un plan tecnológico regional creado hace más de 15 años. En un principio, MOTIVA abordó varias áreas de la cirugía mínimamente invasiva y reconstructiva, pero, finalmente, concentró toda su actividad en la educación y la formación sanitaria.

Nuestra filosofía en educación y capacitación sanitaria la representamos como una "Academia" a la que acuden los miembros de la comunidad clínica con el fin último de su educación (véase figura 1).

Esta educación está soportada por cuatro objetivos educativos: (1) formación para adquirir conocimientos, (2) actualización de dichos conocimientos en base al desarrollo tecnológico, (3) entrenamiento para capacitarse o adquirir las habilidades necesarias y (4) la aproximación al cuerpo humano como sistema de aplicación de dichos conocimientos.

Estos objetivos se apoyan, a su vez, en diferentes soportes educativos que se pueden utilizar individualmente o de forma combinada: simuladores, quirófanos experimentales con animales y cadáveres.

Las escaleras de acceso a esta "Academia" representan la tecnología que ayuda a estudiantes, residentes o especialistas a alcanzar sus objetivos educativos

para aplicarlos en los centros asistenciales (hospitales, centro de salud, etc.).

¿Qué entendemos por educación?

En nuestro enfoque, entendemos la educación sanitaria como una cadena que conecta desde la etapa del grado hasta la de especialista sanitario. En este contexto, MOTIVA utiliza diferentes tipos de tecnología para, de forma complementaria a la formación recibida en los programas docentes de cada etapa, acercar a los estudiantes a su mejor resultado educativo.

En nuestro enfoque, entendemos que el objetivo principal de un centro de simulación debe ser el enfermo. La seguridad y el cuidado del enfermo son la razón por

residentes y los especialistas.

En el caso de los estudiantes de medicina, nos interesa acercarles a los enfermos, utilizando escenarios virtuales donde puedan hacer desde disecciones, para aprender anatomía humana (véase fig. 3 y 4), a interacciones con enfermos virtuales para aprender procedimientos clínicos.

Para los residentes y los especialistas, estamos especializados en enseñar y entrenar procedimientos mínimamente invasivos utilizando simuladores virtuales basados en computador (véase fig. 5, 6 y 7).

En ambos casos, la tecnología basada en computador nos permite medir métricas de los asistentes cuando están realizando la simulación. Estas medidas ayudan a valorar las habilidades de los usuarios y obtener una evaluación objetiva de su conocimiento del tema o técnica propuesta.

El enfoque MOTIVA

El Pensamiento Transversal con Base Tecnológica (Tech-based Transversal Thinking) es el lema que subyace en nuestro enfoque MOTIVA para la educación y formación sanitaria.

El primer concepto de este lema se refiere al término tecnología (primera "T" de este lema en inglés), y se basa en las siguientes ideas:

- Usamos tecnología que enseña tecnología. Los principales procedimientos clínicos se basan en el uso de varios tipos de tecnología. La educación en la propia tecnología es fundamental para entender y aplicar la técnica.
- Usamos simuladores basados en computador porque ahorran tiempo al experto clínico. La tecnología de simulación por computador nos permite medir lo que hace el aprendiz considerando las restricciones establecidas por los expertos clínicos. Por tanto, los formadores expertos no tienen que estar presentes toda la sesión de simulación, utilizando su tiempo de forma óptima.
- Los simula-



Fig. 1: La filosofía de educación y capacitación en sanidad que ilustra la idea subyacente en el enfoque MOTIVA.



Fig. 2: Interpretación del enfoque MOTIVA sobre el flujo educativo en la cadena formativa sanitaria. Nótese que en la etapa de residente y especialista la educación se solapa con la asistencia sanitaria. En todos ellos, la tecnología complementa los programas formativos de cada etapa



Fig. 3 y 4: Ilustración de la aplicación de realidad virtual inmersiva multiusuario que utiliza MOTIVA para estudiantes de medicina.

dores basados en computador devuelven una evaluación objetiva de la tarea realizada por el aprendiz. Por tanto, el propio simulador nos puede ayudar a conocer la adquisición y evolución del conocimiento de los usuarios.

- Incluimos nuestros propios desarrollos en simulación por computador en nuestras actividades de educación. Los simuladores con base tecnológica son más fáciles de incluir en nuestra actividad educativa.
- El segundo concepto (segunda "T" del lema en inglés) es el de la transversalidad de nuestra implementación de la tecnología. Esto significa que:
- Desarrollamos, o adquirimos, simuladores teniendo en cuenta que varios procedimientos clínicos utilizan la

cooperación y comunicación fluida con ellos, alcanzar los objetivos docentes del centro.

Conclusión

Queremos concluir este artículo con una frase que siempre tenemos en mente en nuestro grupo: en simulación sanitaria, no se asume nada, se debe verificar todo.

Dácil Melián Carrillo

Yeray Cabrera Domínguez

Manuel Maynar



Fig. 5, 6 y 7: Residentes trabajando con simuladores virtuales para mejorar algunas técnicas clínicas

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Corporation Vs Start-Up: the big dilemma

Jacob Rahman shares his point of view and explains why having a clear understanding of the simulation industry can help educators make the right choice

So, you want to buy a Medical Simulator or Simulation Product? Where do you start? Who do you start with? Which product? Which company? 80% of all simulation sales goes to the corporations. They have more sales people, more marketing power and can mass produce products. Does this mean the products are better? Most robust? Are they more innovative? Is service the gold standard? Start-ups have less sales people, less marketing power, lower influence on the global simulation market. But does that mean their products are worse and they have less innovation? Does it mean you'll get worse service? Why is 80% of the default position simply to buy from corporations? In a market where quality control and standardisation are not governed, and can be subjective, is this the best way to nurture innovation?



Corporations, a solid easy choice.

Large corporations can offer many positive things. But everything is a compromise.

Innovations from corporations come very seldomly. Everything needs to be scaled up, and rationalised. Products must reach a global audience quickly. Manufacturing must be highly profitable to feed the hungry, complex network of departments.

Sometimes corporations don't innovate much at all, but they buy innovative companies and establish a sales and marketing network around them, all brought together with one badge and a mission statement vague enough to incorporate everything they might stand for. Sales people are all aggressively targeted to sell, high pressure. Sales obviously keep this massive animal working. Bad years mean job losses and cutbacks, but corporations rumble on. There can be no failures with corporate innovations, though clearly there have been.

With large corporations, sales people can knock on your door every day. They can quickly solve some of your problems by helping you to part with a budget quickly which is sometimes an issue in itself. Establishing a beachhead in your institution with previous business, establishing a landing point for other products to be sold.

You, the consumer, have more bargaining power with corporations. They have greater margins and greater profits. You can haggle and make your cash stretch further. If

Start-ups and independents, the seldom seen solution.

These are often founded by passion to solve existing problems. Born from innovation, just like corporations used to be. Sometimes correcting issues or limitations with products sold by the corporations. Recently these could be summarised with such innovations as making patient simulators more inclusive and representing diversity both ethnic and body demographic. Or surgical simulation making simulators that meet the actual curriculum whilst being cost and use efficient. Subjects that the corporations are playing catch up on.

Start-ups are leading the way on Augmented, Virtual, Mixed Reality and Immersive technology. Trying everything to create products for the future and for now. For every 1 innovation from a corporation there are 10 small companies that can't get to you with equal or better and more compelling solutions.

Start-ups have flexibility to solve problems quickly. Responding to customer feedback because their products are not yet mass-produced. Issues with start-ups have to be acted on quickly, because reputations are fast tarnished due to the lack of customer facing activities on mass.

Addressing issues on products or customer service with start-ups means that end users can quickly access the passionate drivers at the top. Bureaucracy to solve a problem is low, not yet layered in departmental barriers. It's within

you are looking for products that "more or less meet your needs", you can make those corporations fight and pitch for your business against one another and do the best financially for your institution.

The products that they sell do more or less meet your needs. But sometimes a product is a global experiment and you are the "guinea pigs". Is it ready for the mass consumer? You'll find later on, when you plan the workaround. Yes, it more or less meets your needs and will quickly become a global success because of the sales and marketing machine that surrounds it. It is a solution, but is it the best one?

their interest to act quickly. You, the "end user" can help define solutions that will benefit you and others. The innovator or pioneer is only a couple of steps from your reach. You will be heard.

Regarding service & customer care from a start-up versus a corporation, consider this: is it better to have a service team of 4 looking after 1000 products or a service team of 2 looking after 50 products? It's an economy of scale, and often service is an afterthought based on success of mass sales. The smaller companies "must" deliver service, failure to do so could end in extinction.

The start-ups do their best to reach you. But with small marketing budgets, sometimes they don't even have sales people that can call. Financially, you are less likely to have as much bargaining power as a customer because of the tight margins that innovators live with, but there is more opportunity to end with the products that you want. Start-ups make products that end with acquisitions by corporations. If they are good products, it's likely that you'll be able to buy them from the corporations one day anyway. But why not strike early? Become a pioneer and an innovator along with the start-ups. Have your say in their legacy. Help grow this industry making it wider, more diverse, more competitive in its solutions.



The 5 "golden rules of innovation" as a healthcare simulations consumer:

- ✓ Seek and you will find, look under the surface. The smaller companies can help you too. But sometimes you need to seek them out. They are not as visible as the corporations. But this does not make their products or services worse.
- ✓ Make all the companies demonstrate together. Same place, same day. Within the same space touch, feel, look and compare. Challenge the knowledge of the people selling to you within a room, let them pitch against each other, they are competitors, make them compete, it's good for you.
- ✓ Don't be convinced by prices. Does it meet your needs? Does it match your curriculum? Haggle, make the most of the institution's money. You are the custodians of the cash.
- ✓ Take reference sites with a "pinch of salt" not as a method of influence. If a company offers you a reference site, be smart, seek out their customers that they didn't push forward. Forget the shiny new customer reference sites, seek out the ones at year 2-3-4-5, in their journey, who have experienced the full length of a service contract. If it's a company that has 1000 customers, why are they offering you the opinion of just 2-3 well picked customers?
- ✓ Don't just be sold on an image or legacy built over time. An image needs to start somewhere, this will turn into a legacy, but that can only happen if the consumer takes a chance. Be part of the legacy.

More Competition = Greater Choice = More Innovation



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Booth #10



SIM GEEK



SIMZINE



DID YOU KNOW...



Design and commercialization of a neonatal ECMO simulator

How is an ECMO simulator created? Two inventors explain it to us directly, shedding light on some processes that are often obscure to the public

There is no handbook of medical training simulator inventions, therefore as developers we have to come up with our own methods. For the developers of the Human Patient Simulator at the University of Florida that meant using the intuition and collective intelligence of a well-integrated team of clinical educators and engineers. The developers of the Lucina Childbirth simulator at the University of Porto looked at a monograph on the design of combat helicopter simulators by Farmer et al. (1999), who use four coupled simulation and simulator design phases

- Training Needs Analysis (TNA),
- Training Program Design (TPD),
- Training Media Specification (TMS), and
- Training Evaluation (TE).

For the design of acute care training simulators, TNA requires a clinical perspective, TPD an educational perspective, and TMS an engineering perspective. TE will establish if these three perspectives were successfully combined or not. Three adaptations were made to this method:

1. During TNA, a detailed analysis of critical incidents was included to justify the development of a new simulator. In the case of the childbirth simulator, these were the Confidential inquiries into stillbirths and deaths in infancy.
2. Farmer et al. introduced the concept of "Norm Scenarios" only in the TE phase. For the development of the childbirth simulator, this concept was expanded to a full list of clinical conditions that trainees should be able to recognize and manage. This list was then used throughout the design process. Examples for the childbirth simulator are fetal position

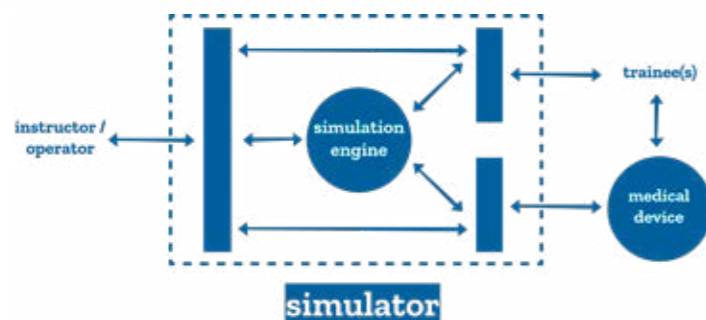


Figure 1: Functional units of an acute care simulator, adapted from van Meurs (2011). Rectangles represent interfaces, for example, the mannequin is part of the trainee interface, as is a clinical monitor emulated on a computer screen. If real medical devices, such as clinical monitors or ventilators are used, the simulator needs to interface to those. The simulation engine consists of scripted scenario transitions, and potentially of models of physiology and pharmacology. The simulator is controlled, and data are retrieved via the instructor/operator interface.

related blockage of flow through the umbilical cord, and post-partum hemorrhage

3. The functional units of an acute care simulator, subject to design in the TMS phase, were identified [Figure 1].

When Timothy Antonius started work on a training simulator for neonatal Extracorporeal Membrane Oxygenation (ECMO), a technology intensive external artificial heart-lung, he had a mostly verbal and fragmented account of the above-described design method, but was able to follow its steps. Doctors and nurses are trained in treating newborns with serious respiratory problems using ECMO. Rates of serious, potentially life-threatening complications with this intervention vary between 30 and 70%. Traditional training took place on lambs. Norm scenarios were derived from the guidelines of the Extracorporeal Life Support Organization



for training and continuing education. Examples include: venous side air entrainment, hypovolemic incidents through unexpected bleeding, and cavitation from a kinked cannula. The proposed one-day course starts with a short lecture on ECMO pathophysiology, followed by hands-on training. In team simulation sessions, trainees are confronted with four scenarios followed by a half-hour debriefing per scenario. The simulator and other training media are designed keeping the requirements of the training program in mind. The trainees interact with a baby mannequin for cannulation and assessment of clinical signs, and with a real ECMO machine. The simulator includes an inline system with venous and arterial connectors. Two wireless tablets contain the instructor/operator interface, and a clinical monitor emulator, respectively [Figure 2]. Using a monitor emulator, rather than real clinical monitors makes the system customizable and more affordable. The instructor can write, select, launch, and modulate the severity of clinical scenarios. The simulation engine consists of models of neonatal cardiorespiratory physiology, modulated by the instructor.

The simulator is commercialized by ECMO oxygenator manufacturer Chalice Medical, Ltd, Worksop, UK. Educational impact studies are encouraged by the developer and the manufacturer. Analysis of the potential market and optimization of technology for manufacturing and maintenance also played a role in the design, but are not further discussed here

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Standardized Medical Students: a novel approach

Similarly to standardized patients, standardized medical students were created to train clinician-educators

Supervising medical students is a critical responsibility for clinicians in academic centers. As medical school programs continue to expand, the need for effective clinician-educator training programs has become more pressing. Similarly to standardized patients, at our institution, we have created a novel approach to addressing this need: the creation of standardized medical students (SMSs).

SMSs are senior medical students who volunteer to participate in a program designed to train clinician-educators. Students participating in this program usually have a personal interest in acting or the performing arts. They are given a standard profile and specific cues about how to portray a junior medical student during a scenario. The encounters take place in the simulation lab, where clinicians-educator-in-training are asked to task and supervise the SMSs during a simulated patient encounter. A standardized patient is also present to allow the SMSs to perform the task actions while being supervised by the trainee. At the end of each scenario,

the instructors, SMSs, and course participants take part in a debriefing.

The use of SMSs in clinician-educator training programs has shown promising results. It allows clinicians to practice and develop their supervisory skills in a safe and controlled environment. Interacting with different SMSs types helps them understand that clinical teaching and supervision may require personalized goals and interventions to meet the specific learning needs of medical students.

One of the most significant benefits of using SMSs is that they provide clinicians with a standardized way to evaluate their own teaching and supervisory skills. The simulation environment allows clinicians to reflect on their performance and receive feedback from other participants. This reflection and feedback are essential for improving teaching and supervisory skills and providing effective training for medical students.

The use of SMSs has been well-received by participants in the clini-

cian-educator training program. In future editions of the program, an educator self-efficacy questionnaire and student's ratings of educators' supervision skills will assess the formal effectiveness of SMSs. The results of these assessments will provide further evidence of the benefits of using SMSs in clinician-educator training programs.

FURTHER READING:

Carenzo L, Oldani S, Barra FL, Montagna L. Standardised medical student for clinician educator training. Med Educ. 2019;53(11):1158. doi:10.1111/medu.13971



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SIRMED: simulation and training along the chain of survival

Established in 2002, SIRMED is today one of the largest and most active simulation centres in Switzerland using simulation for first aid training up to organisational development and quality management purposes

The Swiss Institute of Emergency Medicine (SIRMED) is a nationwide operating educational institution on education and training in the field of emergency medicine. In the department of the Higher Professional School paramedics are trained according to the national curriculum. The department of Continuous Medical Education comprises educational programs for professionals in the entire field of emergency medicine. Beside others, these include internationally recognised course formats of the American Heart Association, the European Resuscitation Council and the National Association of Emergency Medical Technicians. The First Aid department offers a variety of courses for first aiders. The Service & Operations department ensures smooth course administration and is responsible for marketing and quality management.

SIRMED was founded in 2002 as a subsidiary of the Swiss Paraplegic Foundation (SPF) and is located in Nottwil, a village near Lucerne in central Switzerland. In 2019, the Swiss Air-Rescue Rega took the co-ownership of SIRMED. To date a total of 40 permanent staff and almost 300 freelancers are helping to fulfil the mission. The first paramedic class started in 2003, after which SIRMED developed into one of the largest providers of emergency medical courses in Switzerland, with well over 10,000 participants per year. In 2014, the first EuSim Simulation Instructor Course was taught in German language at

SIRMED. Since 2017, SIRMED has been part of the EuSim Group and, together with the Bern Simulation and CPR Centre, hosts instructor courses of all kinds. In 2018, new facilities dedicated to simulation have been opened and they have already been expanded this year. Also, in 2018 SIRMED was among the first simulation centres accredited by the Society



for Simulation in Europe (SESAM). Since 2021, SIRMED has been an educational partner of the University of Lucerne and contributes to the emergency medicine training of medical students.

We see simulation first and foremost as a learning methodology that is well suited for emergency medical education and training. Nevertheless, its use is deliberately planned in accordance with the content to be covered and the learning objectives. We roughly distinguish between the categories of skills, scenario and team training, to which the type of simulation is dedicated. In concrete terms, the question here is to what extent the work environment, the equipment or the individual perception of the work situation must be recreat-

ed in order to achieve the best possible learning. In our understanding simulation-based training necessarily includes a structured debriefing. Therefore, all instructors who are doing high fidelity simulation training received special training in simulation and debriefing. As a minimum requirement, we consider the Level 1 Simulation Instructor Course of the EuSim Group (or equivalents). To ensure quality in debriefing, regular formative debriefing assessments are carried out using the Objective Structured Assessment of Debriefing (OSAD) tool.

The First Aid department offers team-work-oriented simulation training for all kinds of first responders. The syllabus for Paramedic training at SIRMED contains at least ten days of simulation-based education during their three-year lasting training program. These days explicitly focusing on patient safety, non-technical skills and interdisciplinary collaboration. Simulated patients are frequently used and their feedback on appearance and behaviour contributes to patient-oriented training. In the branch of Continuous...



Entrevista al Presidente de RENASIM, José Luis García Galaviz

Como parte de nuestra serie de artículos que destacan las Sociedades de Simulación, SIMZINE entrevista al presidente de la Red Nacional de Educadores en Simulación Clínica (RENASIM), José Luis García Galaviz, sobre el pasado, presente y futuro de RENASIM y el estado de la simulación clínica en México.



José Luis García Galaviz
Director área de Ciencias de la Salud en la Escuela de Medicina "Dr. José Sierra Flores" en la Universidad del Noreste A.C. Tampico. Coronel médico Cirujano Pediatra Egresado de la Escuela Médico Militar. Presidente de la Red Nacional de Educadores en Simulación RENASIM. Miembro numerario de la Academia Mexicana de Pediatría y de la Academia Nacional de Educación Médica. Fundador y miembro de la Federación Latinoamericana de Simulación Clínica FLASIC. Instructor en simulación: Center for Medical Simulations, Harvard Medical School - MIT Division of Health Sciences and Technology, Hospital Virtual de Valdecilla. Miembro del Colegio Mexicano de Profesores de Pediatría.
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Como parte de nuestra serie de artículos que destacan las Sociedades de Simulación, SIMZINE entrevista al presidente de la Red Nacional de Educadores en Simulación Clínica (RENASIM), José Luis García Galaviz. Médico Cirujano Pediatra e instructor en simulación, ha sido entre los fundadores de FLASIC (Federación Latinoamericana de Simulación Clínica). Actualmente trabaja como Director del área de Ciencias de la Salud en la

Escuela de Medicina "Dr. José Sierra Flores" en la Universidad del Noreste A.C. Tampico. Hoy nos habla del pasado, presente y futuro de RENASIM y del estado de la simulación clínica en México.

Hola José Luis, gracias por aceptar pasar un rato con nosotros. ¿Cómo empezó a interesarse por la simulación?

El interés que despertó en mí la simulación clínica se originó por la necesidad de mejorar la formación y el entrenamiento en habilidades clínicas y procedimientos médicos. La enseñanza tradicional basada en la observación y la práctica en pacientes reales

no siempre proporciona un ambiente seguro y controlado para que los estudiantes pudieran aprender y mejorar sus habilidades. La práctica en pacientes reales es difícil realizarla, hay muchas restricciones por los aspectos legales, requiere una gran cantidad de tiempo y recursos y puede representar un riesgo para la seguridad del paciente.

La simulación clínica surgió como una solución para estos problemas, proporcionando un ambiente seguro y controlado para la formación y entrenamiento de habilidades clínicas. La tecnología de simulación permite a los estudiantes practicar habilidades y procedimientos en un ambiente simulado que reproduce situaciones clínicas reales, sin poner en riesgo la seguridad de los pacientes.

Además, la simulación clínica también permite a los profesionales de la salud mejorar su desempeño en situaciones de emergencia y tomar decisiones más informadas y precisas. En resumen, mi interés por la simulación clínica se debe a su capacidad para mejorar la formación y el entrenamiento en habilidades clínicas y la seguridad del paciente.

¿Puede decirnos qué es RENASIM? Y, ¿Por qué quiso ser su Presidente?





Gaumard sceglie Simula Hub

Per la prima volta nella storia di Gaumard, il suo International Sales Meeting è stato organizzato in Italia, negli spazi all'avanguardia di Simula Hub: ecco il racconto dell'esperienza.

Il futuro della simulazione medica è sempre più vicino, sia nel tempo che nello spazio. È questa la sensazione che si prova quando uno dei maggiori produttori di simulatori al mondo sceglie l'Italia come sede per i propri incontri di aggiornamento internazionali. Nei giorni 18-20 aprile 2023 infatti, all'interno di Simula Hub, il centro di simulazione creato da Accurate a Parma, si è svolto l'International Sales Meeting di Gaumard. Queste giornate di training hanno permesso ai rivenditori internazionali di confrontarsi fra loro e dialogare con i principali referenti di Gaumard, come Dale Giedd (VP of Sales Europe/UK/MENA) e Carlos Chidiac (Regional Director MEA/India/Central Asia). Per la prima volta nella storia di Gaumard, l'International Sales Meeting è stato organizzato in Italia, negli spazi all'avanguardia di Simula Hub; una conferma di quanto il mercato italiano della simulazione clinica stia guadagnando sempre più peso ed importanza.

Gaumard ha presentato le sue ultime innovazioni, come **HAL S5301**, uno dei

simulatori di paziente più avanzati al mondo, e **HAL S2225**, un simulatore pediatrico iper realistico. I simulatori HAL replicano le espressioni facciali con un grado di verosimiglianza tale da potere addirittura parlare, ridere e piangere, rendendo l'esperienza didattica più immersiva e coinvolgente. «Il realismo crea davvero una differenza quando si crede nell'esperienza, quando si vuole davvero trattare un paziente che soffre» afferma

Carlos Chidiac. Su queste soluzioni è possibile implementare Gaumard Ultrasound, il modulo di ultrasuoni con tracciabilità 3D, utilizzabile su tutta la superficie del simulatore. Inoltre, per la formazione in ostetricia, sono stati presentati anche **VICTORIA S2200**, un simulatore di parto realistico ed anatomicamente accurato, nonché **SUPER TORY S2220**, manichino neonatale.

Ma perché è stata scelta l'Italia come location di questo incontro? «Abbiamo una buonissima relazione con Accurate, il nostro distributore italiano. Da anni lavorano sullo sviluppo dell'educazione medica in Italia e hanno ottenuto ottimi risultati con Gaumard. Riconosciamo anche che l'Italia ha un'influenza molto forte in Europa e un grande interesse verso la simulazione clinica, per cui lo vediamo come uno dei luoghi più caldi per far crescere l'attività e ottenere una buona pubblicità» spiega Dale Giedd. «Un altro punto di forza di Accurate è la loro decisione di espandersi non solo nella vendita di simulatori, ma anche nell'offerta di servizi di formazione, due prodotti complementari che differenziano Accurate dagli altri competitors sul mercato italiano»



aggiunge Carlos Chidiac.

Nella struttura di Simula Hub infatti vengono svolti una varietà di corsi di simulazione, le cui specialità vanno dalla chirurgia ostetrica alla medicina d'urgenza, fino al Train the Trainer per formatori. Il meeting di Gaumard ha confermato l'eccellenza di questo spazio, il quale è stato concepito secondo un modello 'aperto'. Emiliano Tizi, Responsabile Marketing di Accurate, precisa che «tutto quello che è contenuto qui dentro può dall'oggi al domani cambiare completamente assetto, oppure può essere portato fuori dal centro di simulazione. (...) Noi parliamo di simulazione territoriale, cioè

l'idea di spostare la simulazione avanzata fuori dal contesto canonico del centro per inserirla all'interno di congressi e corsi di formazione, in modo da rendere questi eventi più interattivi ed innovativi».

Fra i prossimi appuntamenti di Simula Hub possiamo menzionare «una serie di corsi dedicati all'anestesia loco regionale, che sono il nostro fiore all'occhiello grazie alle tecnologie esclusive che abbiamo a disposizione e consentono effettivamente di pungere» ci racconta ancora Emiliano Tizi. «Inoltre abbiamo l'unico corso in Italia sulla simulazione del taglio cesareo e della isterectomia, e poi sarà inaugurato a

giugno la prima edizione di un corso dedicato al trauma con un approccio multidisciplinare in cui interi team potranno allenarsi insieme e confrontarsi per condividere esperienze».

Se l'Italia sta diventando un polo di innovazione e sviluppo per la simulazione clinica, è anche grazie a strutture come Simula Hub, un centro in cui competenza e passione incontrano le tecnologie più avanzate.



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DID YOU KNOW...



SimZones e debriefing

Come simulazione, pratica riflessiva e buon giudizio si possono declinare nelle diverse SimZone.

Nel 2017 Roussin e Weinstock del Boston Children's Hospital hanno introdotto il concetto di SimZones per razionalizzare la simulazione in sanità (Roussin & Weinstock, 2017). Le zone di simulazione sono cinque.

La zona 0 coinvolge il singolo allievo per valutare la propria conoscenza su un argomento attraverso una risorsa digitale. In zona 1 un gruppo di operatori o di tirocinanti approfondiscono una procedura tecnica con la guida di un istruttore. La zona 2 riguarda la gestione multidisciplinare delle situazioni cliniche: i discenti affrontano uno scenario clinico simulato, con la guida di un istruttore. In questa zona è possibile il gioco di ruolo. La zona 3 pone al centro il lavoro di squadra attraverso la simulazione ambientale ad alta fedeltà. Coinvolge un gruppo multidisciplinare proveniente dalla stessa realtà è la scelta più idonea. Un facilitatore gestisce il debriefing, meglio se strategico. L'obiettivo è lo stimolo al cambiamento. La zona 4 utilizza il metodo della zona

3 negli ambienti di cura. Il debriefing guidato degli eventi clinici significativi nel proprio gruppo porta al cambiamento.

Nella tabella la classificazione dettagliata delle zone di simulazione.

La pratica riflessiva per la simulazione è nata presso l'Università di Harvard e presso il Massachusetts Institute of Technology (Rudolph et al., 2006). Attraverso un metodo cognitivo, psicologico e antropologico la pratica riflessiva aiuta a fare tesoro delle esperienze vissute. Ognuno di noi produce nella mente un "frammento" della realtà, invisibile all'esterno. La mente interpreta l'esperienza sensoriale per dare un senso alla realtà. Una diagnosi è un frammento della realtà. Spesso in un gruppo di lavoro i frammenti della realtà non coincidono tra gli operatori.

La conseguenza del frammento della realtà è "azione". L'azione è visibile al mondo esterno. L'errore, nel bene e nel male, è la logica conseguenza di

un'azione che nasce da un frammento soggettivo di realtà, che poi si rivela non adeguato.

Il "risultato" è la sintesi delle azioni e dei frammenti. L'effetto finale è visibile all'occhio esterno. In medicina potrebbe essere la sopravvivenza di un paziente.

In un gruppo di lavoro la connessione tra le azioni del gruppo e i frammenti dei singoli operatori spiega la complessità dei risultati.

La riflessione dopo la simulazione aiuta a fare emergere i frammenti di realtà di ogni operatore con cui si è arrivati alle azioni e al risultato. Il cammino è a ritroso...



Classificazione dettagliata delle zone di simulazione.

	Zona 0 Autovalutazione	Zona 1 Abilità tecniche	Zona 2 Urgenze ed emergenze	Zona 3 Lavoro di squadra	Zona 4 Vita reale
Chi	Discente singolo	Squadra parziale Tirocinanti	Squadra parziale o completa	Squadra completa, proveniente da una unica realtà	Squadra completa, proveniente da una unica realtà
Cosa	Autovalutazione Realtà virtuale FAD	Sessione su una tecnica guidata da un istruttore. Pausa per istruzioni	Situazione clinica simulata con un paziente standard, allenamento ad una emergenza, con un istruttore, senza interruzioni, scenario singolo, Gioco di ruolo	Lavoro di squadra con un facilitatore e stimolo al cambiamento	Riflessione sul lavoro di squadra con un facilitatore e stimolo al cambiamento
Dove	Senza luogo	In situ, Sala simulazione, Centro di simulazione	In situ, Sala simulazione, Centro di simulazione	Sala simulazione, Centro di simulazione, Scenari singoli o multipli	In situ dopo un evento clinico rilevante
Quando	Senza tempo	Sessione pratica singola o a rotazione, in un corso di simulazione	Sessione pratica singola	Corso di simulazione	Prima possibile

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SmartSimulator: la simulazione per la radiologia

Come la simulazione può aumentare i successi di apprendimento dei tecnici di radiologia quando sperimentano in prima persona

Le tecnologie mediche e gli standard di cura in continua evoluzione richiedono un impegno di apprendimento costante da parte degli operatori sanitari, per riuscire a rimanere aggiornati. Personale ben addestrato può fornire cure di alta qualità in modo più efficiente, determinando un risparmio economico per l'ente. Una formazione inefficace porta invece all'aumento dei costi, con una perdita totale per l'azienda che può essere notevole: \$ 13,5 milioni all'anno, su 1.000 dipendenti.

Cosa rende efficace un training? Si potrebbe sostenere che una formazione efficace debba sempre essere fondamentale per il ruolo dello studente, e che nel contesto professionale questa vada integrata agevolmente in un programma di appuntamenti che non impattino sull'operatività del reparto. In tutto il mondo, i metodi di apprendimento tradizionali sono ancora ampiamente utilizzati, ma negli ultimi anni la formazione sta progressivamente diventando sempre più digitale, aprendo nuove opportunità. La filosofia di apprendimento ibrido di Siemens Healthineers combina il meglio di entrambe le modalità, inclusa l'offerta digitale SmartSimulator.

Hands-on

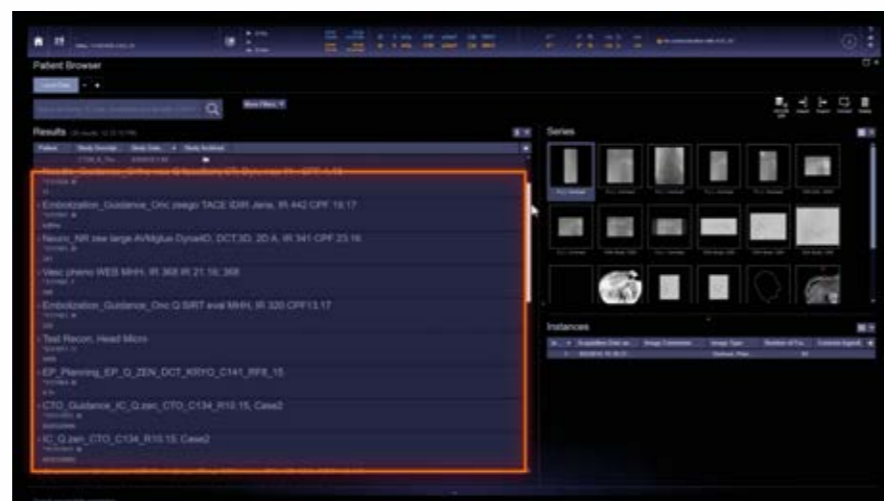
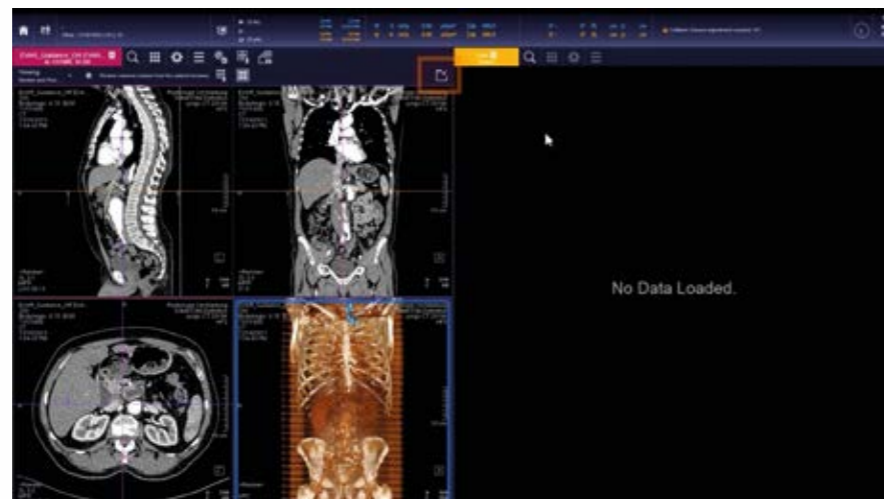
I tecnici di radiologia hanno bisogno di molta esperienza pratica per essere in grado di eseguire esami diagnostici in sicurezza fornendo immagini di alta qualità. Poiché un reparto di radiologia deve essere efficiente e funzionante 24 ore su 24, 7 giorni su 7, è difficile trovare il tempo per una formazione pratica approfondita.

SmartSimulator consente a tecnici, studenti e professionisti, di allenarsi e di fare pratica sulla versione simulata di un dispositivo medico di Siemens Healthineers. Gli utenti possono provare tutte le funzionalità del sistema in un ambiente simulato e sicuro, tramite il proprio computer. È possibile modificare le impostazioni del sistema e vedere cosa succede senza mettere in pericolo i pazienti, aumen-

tando così, in totale sicurezza, la confidenza con l'apparecchiatura e migliorando l'efficienza delle scansioni.

La MT Vocational School of Radiology (UMM) di Mannheim, in Germania, utilizza il simulatore per offrire ai propri studenti una formazione pratica simulata già dall'aula didattica. Gli

È possibile provare i pulsanti senza esporre il paziente alle radiazioni, senza metterlo in pericolo. Ciò che abbiamo imparato viene interiorizzato molto meglio». Parallelamente, Stefan Schäfer, insegnante e direttore dell'Istituto scolastico, apprezza il fatto che la soluzione sia sempre dispo-



studenti sono entusiasti del nuovo metodo di apprendimento, come afferma Kim Mathias, una studentessa di radiologia al terzo anno: «Utilizzando SmartSimulator, abbiamo imparato come funzionano le impostazioni del dispositivo, come spostare il tavolo CT e gestire la scansione.

nibile quando e dove necessaria, il che significa essere indipendenti dalle attrezzature del reparto.

Il simulatore può, inoltre, servire all'onboarding di nuovi colleghi o per addestrare il personale sulle nuove installazioni. Il team di radiologia pres-



so la Radiologie Traunstein-Haslach, in Germania, ha molto apprezzato l'uso del simulatore per ottenere in anticipo un'introduzione dettagliata dell'interfaccia del nuovo sistema di risonanza magnetica. Divisi in gruppi, sono stati guidati a distanza attraverso le varie schede parametri. Sono rimasti colpiti di provare «una prima esperienza pratica di pianificazione delle scansioni». Dopo il briefing sulla sicurezza, sono stati subito in grado di iniziare rapidamente l'addestramento in reparto con il nuovo dispositivo installato. «Questo "briefing in loco" si è rivelato particolarmente efficace grazie al lavoro di approfondimento di base dei precedenti moduli online».

Inoltre, il simulatore può essere utilizzato per adattare protocolli e impostazioni di sistema nel cloud senza bloccare il regolare servizio di assistenza. Le impostazioni adattate vengono scaricate sul sistema in una



fascia oraria predefinita, conveniente per il reparto di radiologia.

Facile accesso

SmartSimulator è una soluzione basata su cloud che offre agli studenti

un'esperienza di formazione pratica simulata e personalizzata per i dispositivi medici di Siemens Healthineers. Il simulatore può essere utilizzato come parte integrante di corsi di formazione in aula o workshop clinici che si svolgono in presenza o online tramite personal computer. I partecipanti possono interagire in un ambiente digitale sia con il loro trainer sia con i colleghi, indipendentemente dal fatto che si trovino fisicamente nella stessa stanza.

Prossimi passi

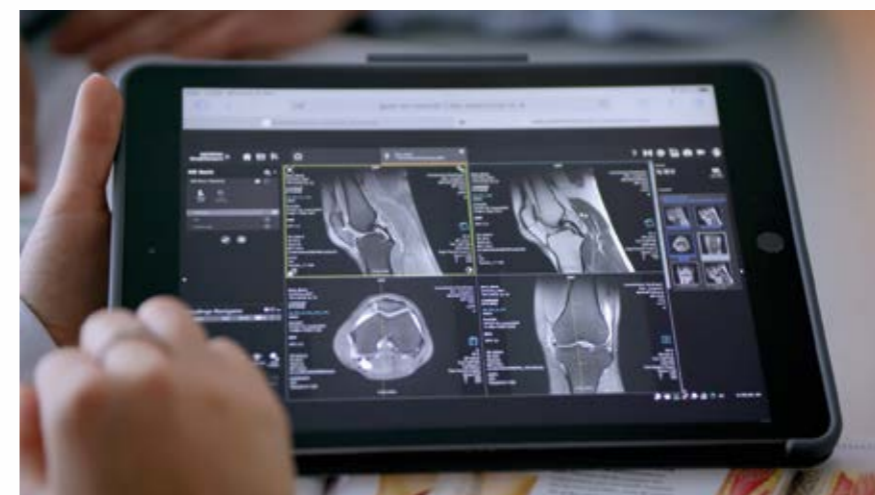
SmartSimulator migliora l'apprendimento digitale grazie all'accesso ad un gemello digitale dell'effettivo am-

biente di lavoro, sempre disponibile ovunque ci si trovi. I tecnici di radiologia, avendo a disposizione un clone del sistema in uso, possono così aumentare le proprie competenze, rafforzando confidenza e dimestichezza con l'apparecchiatura.

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Contenuto scritto in collaborazione con Siemens Healthineers





Lung Ultrasound Simulator, simulatore gratuito di ecografia polmonare

I simulatori di ecografia polmonare sono diventati uno strumento di formazione prezioso per tutti i professionisti della salute. Il nostro Tecnico di simulazione ha rivisto per voi un simulatore di ecografia polmonare virtuale e utilizzabile gratuitamente

Per quanto riguarda la simulazione gratuita, dopo aver parlato di Med Sim Studio, con questo articolo andiamo un po' più nello specifico descrivendo un simulatore di ecografia polmonare virtuale, LUS (Lung Ultrasound Simulator).

I simulatori di ecografia polmonare virtuale sono diventati uno strumento di formazione prezioso per medici, infermieri e altri professionisti sanitari che si occupano di pazienti affetti da patologie polmonari.

Interfaccia

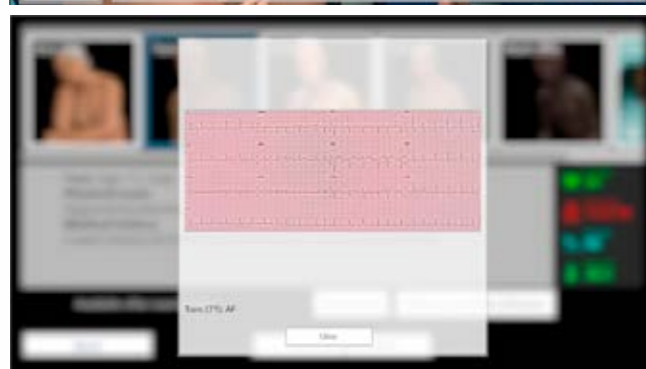
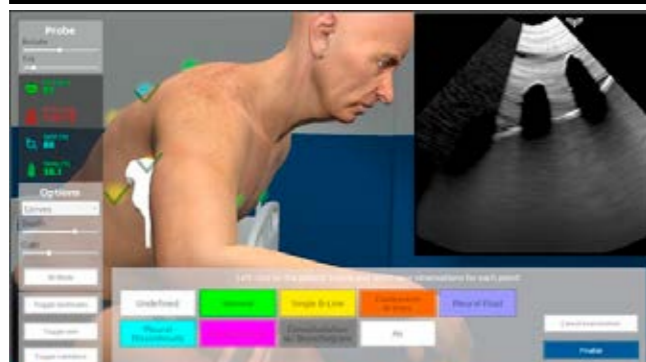
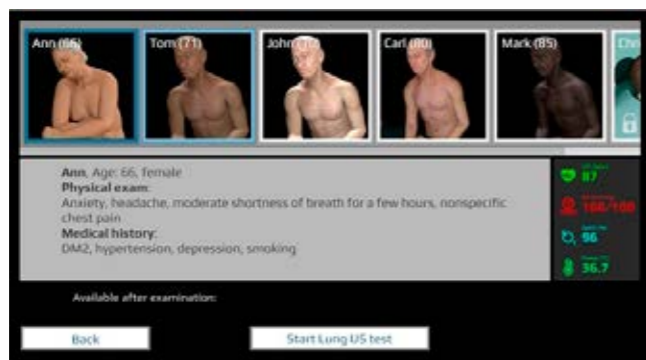
L'interfaccia di LUS è piuttosto semplice, ovvero nella parte superiore si trova l'elenco dei casi (nome ed età) e sotto la descrizione del caso e i parametri vitali di partenza del paziente. All'interno dello scenario sulla sinistra è possibile regolare la posizione della sonda ecografica, il tipo di sonda (convex, lineare e cardiologica), gestire il gain e la profondità, l'attivazione dell'M-Mode e la possibilità di rimuovere i landmark che evidenziano le parti ecografabili, rimuovere la pelle del paziente per visualizzare

gli organi interni e attivare le icone delle osservazioni, che restituiscono un feedback immediato se la scelta è corretta o meno.

Sempre a sinistra vi è la variazione dei parametri e a destra la visualizzazione dell'esame ecografico.

Dopo aver esaminato tutti i landmark è possibile finalizzare la visita indicando la patologia ed esaminare

il feedback, potendo valutare ogni specifico landmark ed eventuali errori di riconoscimento artefattuale. Tornando alla schermata principale, verranno visualizzati dei referti, utili per un eventuale completamento diagnostico...



Pros

- Gratuito
- Funzionalità accurate
- Grafica essenziale
- Gestione della sonda molto approfondita
- Molto leggero e supportato anche da hardware non troppo moderno
- Facile riconoscimento delle principali alterazioni ecografiche polmonari
- Possibilità di formulare una diagnosi
- Intuitivo



Cons

- Pochi casi
- Non c'è un'evoluzione del caso clinico (sarebbe bello se si potesse poi monitorare il paziente nel tempo e vedere cosa cambia dal punto di vista ecografico, poiché nella pratica clinica avviene frequentemente).
- Nei casi presenti non è possibile eseguire un'ecografia con il paziente supino o prono, cosa che accade frequentemente in terapia intensiva o nei reparti.



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