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Guest Editors
Dario Cecilio-Fernandes
Thomaz Bittencourt Couto
Alessandra Mazzo
Maria Stella Peccin

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Editorial secretary
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Internship
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Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
e-mail: revista@einstein.br

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e-mail: revista@einstein.br

Manuscript assistant
Giovana de Holanda Oliveira Rodrigues
e-mail: revista@einstein.br

Systems consultant
Fernando Galan Babio Júnior
e-mail: fernando.junior@einstein.br

Publishing

Electronic publishing
Caboverde Tecnologia e Serviços
e-mail: atendimento@caboverde.com.br

Printing
Ipsis Gráfica e Editora
e-mail: contato@ipsis.com.br

Proofreader
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Typesetting
Rudolf Serviços Gráficos
e-mail: rudolf.atendimento@gmail.com

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Typesetting
Rudolf Serviços Gráficos
rudolf.orcamento@gmail.com

Printing
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contato@ipsis.com.br

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Welcome Address

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IV Einstein International Symposium on Simulation

The Center for Realistic Simulation at *Hospital Israelita Albert Einstein* has been organizing its biennial event, the Einstein International Symposium on Simulation, since 2017. This symposium brings together national and international experts in the field of simulation. Notably, this event marked a significant milestone as it was the first one held at the new Center for Education and Research Albert Einstein – *Campus Cecília and Abram Szajman.*

This year, the event introduced a notable feature: participants had the opportunity to select topics from various tracks they wished to explore over the course of the two days. These tracks were designed based on the certification categories of the Society for Simulation in Healthcare (SSH), encompassing Teaching and Education, Assessment, Research and Systems Integration and Patient Safety. The intention was to address innovative and pertinent subjects related to the practice of simulation in healthcare, thus contributing to the dissemination of knowledge. Furthermore, a Management track was added to seek engagement in discussions about the organizational and administrative requirements of simulation programs.

Within the research track, a scientific board consisting of experts from diverse institutions, with extensive experience in simulation research, offered valuable insights into the process of designing and conducting high-quality research in simulation. This panel thoroughly reviewed nearly a hundred abstracts and evaluated numerous presentations to select the top 42 abstracts for publication in the Journal **einstein** (São Paulo). Additionally, the four highest quality papers were invited to submit their findings as full articles in the Journal. We have great pleasure in presenting these abstracts, sharing the most recent simulation research conducted in Brazil.

We extend our heartfelt gratitude to all participants for their invaluable contributions to the field of simulation.

The Organizing Committee and
Scientific Board

Editorial

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Advancing Simulation-Based Education in Brazil: Bridging Research and Practice for Healthcare Excellence

Dario Cecilio-Fernandes[1], Maria Stella Peccin[2], John Sandars[3], Thomaz Bittencourt Couto[4,5], Alessandra Mazzo[6]

[1] Department of Medical Psychology and Psychiatry, School of Medical Sciences, Universidade Estadual de Campinas, Campinas, SP, Brazil.
[2] Department of Sciences and Human Movement, Universidade Federal de São Paulo, Santos, SP, Brazil.
[3] Health Research Institute, Edge Hill University, Ormskirk, England.
[4] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
[5] Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
[6] Faculdade de Odontologia de Bauru, Universidade de São Paulo, Bauru, SP, Brazil.

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Simulation-based education (SBE) in health professions education has been increasingly implemented across the world for the past two decades. There has also been a similar trend in Brazil, with SBE being widely implemented in most phases of education, from undergraduate to postgraduate to continued professional development. However, there are still many challenges concerning the effective use of SBE in Brazil, especially due to the low level of country-specific research that can inform its implementation. In this editorial, we will discuss the current challenges of researching SBE to inform best practice in Brazil and also propose a future research agenda to ensure SBE is more effective.

We conducted a search on the Web of Science using terms related to SBE and found a growth in the number of publications related to SBE. We identified 7,113 articles worldwide (Figure 1), but only 168 articles (Figure 2) were by Brazilian authors. We have also noticed that most publications from Brazil are published in Brazilian journals, but not in international journals. One possible explanation is the lack of authors' proficiency in English and the fact that most publications in high impact journals only have native English speakers as co-authors.[1] Also, non-native speakers take more time to write and revise in English.[2] However, this also might be explained by the type of research that has been conducted in Brazil.

The history of SBE in Brazil is recent and the articles identified in the search highlight different periods in the development of research on SBE. First, most of the studies were related to the strategy of SBE, including the discovery and appropriation of the physical, human and material resources. Subsequently, research focuses on distinguishing skills, training, and the development of scenarios and instruments to support and evaluate SBE. Finally, there was

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Corresponding author:
Dario Cecilio-Fernandes
Rua Tessália Vieira de Camargo, 126 - Cidade Universitária
Zip code: 13083-887 - Campinas, SP, Brazil
Phone: (55 19) 3521-7378
Email: dario.fernandes@gmail.com

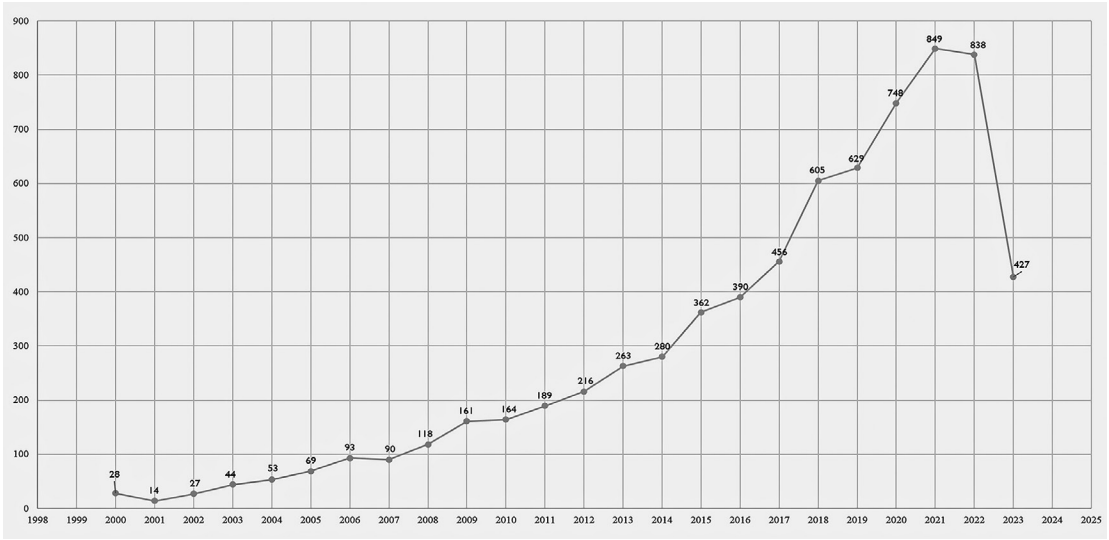

Figure 1. Number of articles published on simulation-based education in Web of Science per year by international authors

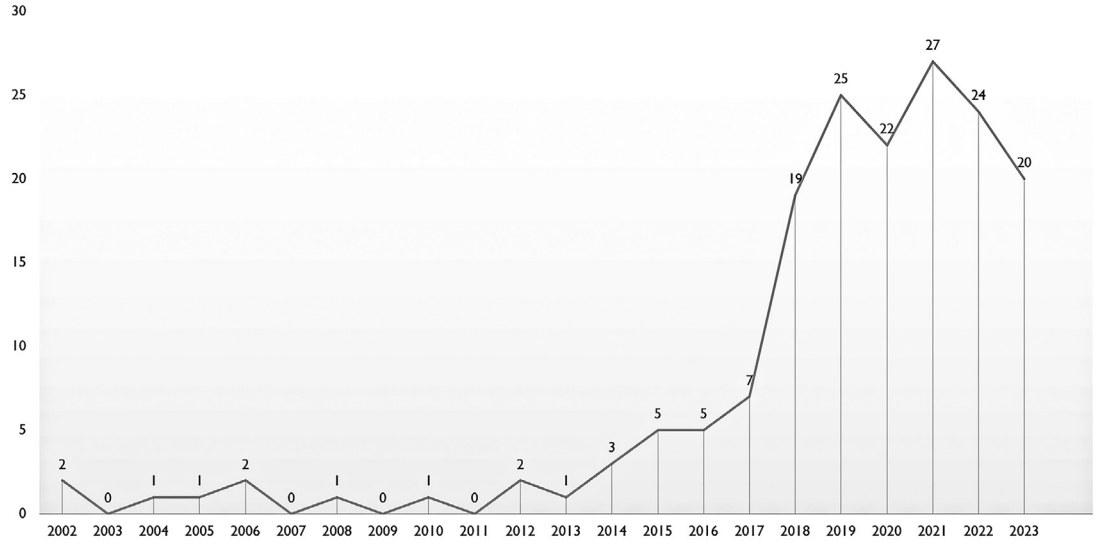

Figure 2. Number of articles published on simulation-based education in Web of Science per year by authors in Brazil

an increase in research investigating participants' satisfaction and whether they had learned after SBE. There were various discussions about the bioethics of training procedures on patients, patient safety policies, and the high mobility of professionals in clinical fields, associated with changes in organizational contexts.

Around 2010, a more in-depth discussion began, especially with the development of scientific events, discussion forums, training of trainers and researchers who looked back at the need for physical, human and material structures, and the need to invest resources that could encourage the use of clinical simulation to be more widely implemented in Brazil. In the same period, the Brazilian Association of Health Simulation (ABRASSIM - *Sociedade Brasileira de Simulação na Saúde*) was founded by a group of health educators and researchers with the purpose of adding professionals who would develop and disseminate SBE. Postgraduate research courses began with the first theses and dissertations focusing on simulation being published. Another milestone was the inclusion of SBE in the Curricular Guidelines for Medicine Courses (2014) and Nursing Courses (2018), which highlighted active learning methods, increasing health courses investments in physical and material resources, with a focus on simulation laboratories.

Despite the recent interest in research, many Brazilian studies are still investigating whether participants enjoy simulation training or whether they learned after simulation training without any further comparison. This means that most of the research focuses on the first two levels of the Kirkpatrick model, which has little value for international journals as it is well established that participants enjoy and learn from simulation training. The Kirkpatrick model has been widely used to classify outcome measurements in health professions education. This model has four levels. The first level is reaction. It measures whether participants are satisfied with the training. The second level is learning. It measures the degree of the intended learning objective acquired by participants. The third level is behaviour. It measures whether participants apply what they learned in practice. Finally, the fourth level is results. It measures whether there was a change in the target outcome.[3]

Another important aspect is that most evidence available to educators include findings from research conducted outside Brazil. This limits the potential application of research to inform local best practices as there often is a lack of information on how the intervention was performed and the barriers encountered.[4,5] Without that basic information, the implementation of new strategies is unrealistic and there are recent calls for greater transparency in reporting.[5,6] Implementation science has a focus on the implementation of knowledge into practice and it has been widely used in healthcare.[7] A variety of methods can be combined to understand how evidence can be implemented in practice by identifying factors that are enablers and barriers to changing current practice. It also requires an understanding from individual, organizational, and wider system levels.

There is a vast literature suggesting a decay in both knowledge and skills after SBE, even within a few days of training.[8,9] Designing interventions based on cognitive science principles, such as spacing effect and testing effect, is essential for effective SBE, especially to minimise knowledge and skill decay. However, there are few studies comparing the advantages of different cognitive strategies.[10]

We propose a future research agenda addressing the challenges of implementing effective SBE in Brazil. Our key recommendations to advance SBE research include measuring outcomes at the higher third and fourth levels of the Kirkpatrick model, using insights from implementation science in order to understand and overcome the barriers to local implementation, and conducting experimental research that will compare different simulation strategies.

AUTHORS' INFORMATION

Cecilio-Fernandes D: http://orcid.org/0000-0002-8746-1680
Peccin MS: http://orcid.org/0000-0003-0329-4588
Sandars J: http://orcid.org/0000-0003-3930-387X
Couto TB: http://orcid.org/0000-0003-4744-981X
Mazzo A: http://orcid.org/0000-0001-5074-8939

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Committees

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Executive coordination

- Thomaz Bittencourt Couto – Emergency Pediatrician, Simulation Center Specialist – *Hospital Israelita Albert Einstein, São Paulo, SP*, Brazil.
- Joyce Kelly Barreto – Simulation Center Manager – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.
- Mariana Santos Alecrim Molina – Simulation Center Coordinator at the Center for Realistic Simulation – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.
- Priscilla Cerullo Hashimoto – Simulation Center Coordinator – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.

Scientific committee

- Alessandra Mazzo – Associate Professor, *Faculdade de Odontologia de Bauru, Universidade de São Paulo, Bauru, SP*, Brazil.
- Alessandra Vacarri – Nursing Teacher – *Universidade Federal do Rio Grande do Sul, Porto Alegre, RS*, Brazil.
- Brena Carvalho Pinto de Melo – Coordinator of the Simulation Center (CSim) at the *Faculdade Pernambucana de Saúde* (FPS), *Recife, PE,* Brazil; *Universidade Federal de Pernambuco, Recife, PE*, Brazil.
- Carolina Felipe Soares Brandão – Coordinator of the Simulated Hospital for Medicine Courses at UNICID – *Universidade Cidade de São Paulo, São Paulo, SP,* Brazil; USCS – *Universidade Municipal de São Caetano do Sul, São Caetano do Sul, SP,* Brazil; IPEMED.
- Dario Cecilio-Fernandes – Researcher in the Department of Medical Psychology and Psychiatry – *Universidade Estadual de Campinas, Campinas, SP,* Brazil.
- Jorge Vinícius Cestari Felix – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.
- Juliana Faria Campos – Associate professor at the *Escola de Enfermagem Anna Nery, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ,* Brazil.

- Lilia de Souza Nogueira – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.
- Marcos Antônio Marton Filho – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.
- Maria Stella Peccin – Associate Professor – *Universidade Federal de São Paulo, São Paulo, SP,* Brazil.
- Raphael Ranieri – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.
- Thomaz Bittencourt Couto – Emergency Pediatrician, Simulation Center Specialist – *Hospital Israelita Albert Einstein, São Paulo, SP,* Brazil.

Speakers

International Speakers

Deborah D. Navedo

A pioneer in the education of healthcare professionals and a certified healthcare simulation educator – advanced (CHSE-A), Dr. Navedo has developed and supervised several educational programs for undergraduate programs as well as faculty development. A long-time collaborator in the writing of simulation texts and a member of the editorial board of the international journal Simulation in Healthcare, Dr. Navedo is a member of the editorial board of the journal Simulation in Healthcare. Navedo is a lecturer, workshop facilitator, trainer and mentor to clinical educators in all healthcare professions.

Peter Dieckmann

Peter Dieckmann is an occupational and organizational psychologist. He is interested in using simulation to optimize the interaction of humans, technology and organizations in the best interests of safety, quality of care and the well-being of health professionals. He is a former president of the SESAM (Society in Europe for Simulation Applied to Medicine).

Rodrigo Rubio Martínez

Dr. Rodrigo Rubio is a practicing anesthesiologist in Mexico City at the American British Cowdry Medical Center. After completing a simulation fellowship at Western University in London, Canada, Dr. Rubio now leads the simulation program at his institution. He was president of the Latin American Federation of Simulation in Health and founded the Latin American Journal for Simulation. Dr. Rubio has always been uncomfortable with the “”*status quo*”” in education and has worked on many projects promoting new ways of learning in low-resource settings. He also serves as a member of the Education Committee of the WFSA, the Education Committee of the Mexican Federation of Anesthesia and the Mexican Board of Certification in Anesthesia.

Vinay M. Nadkarni

Medical Director of the Center for Simulation, Advanced Education and Innovation at the Children’s Hospital of Philadelphia.

National Speakers

Alessandra Mazzo

CNPq Productivity and Research Fellow Level 2. She holds a Degree, Master's and Doctorate in Nursing from the *Escola de Enfermagem, Universidade de São Paulo, Ribeirão Preto* (EERP-USP). Post-Doctorate from the Nursing School of Coimbra. She is an Associate Professor, *Faculdade de Odontologia de Bauru, Universidade de São Paulo* (FOB-USP). She is the Coordinator of the Center for Education and Training in Health (CECS - *Centro de Educação e Capacitação em Saúd*e) at the Bauru Campus (FOB/USP).

Alessandra Vaccari

Nurse specializing in Neonatology, Master's and Doctorate in Child Health. Professor of the Postgraduate and Undergraduate Nursing Programs at the Nursing School of the *Universidade Federal do Rio Grande do Sul* (UFRGS). Treasurer of the FLASIC (*Federación Latinoamericana de Simulación Clínica y Seguridad del Paciente*) and Honorary Member of the ABENTI (Brazilian Association of Intensive Care Nursing). She trained as an instructor in Clinical Simulation and was the coordinator of the LAPENF (Nursing Practices Laboratory) at UFRGS. She is a researcher with the Nursing, Education and Technology Studies and Research Group (Gepeetec) at UFRGS.

Alexandre Holthausen Campos

Postdoctoral degree from the University of Atlanta-Morehouse School of Medicine. Ph.D. in Medicine from the *Universidade Federal de São Paulo*. He is currently Superintendent Director of Education at the *Instituto Israelita de Ensino e Pesquisa Albert Einstein, Hospital Israelita Albert Einstein*. Experience in Medical Education in the area of General Biology, with an emphasis on Cellular and Molecular Biology, working mainly on the following topics: biology of mesangial cells and vascular smooth muscle.

Ana Carolina Invencione Porto

Nurse with a postgraduate degree in Public Health with an emphasis on Family Health. Currently, she works as a Realistic Simulation Analyst, playing a very important role in the formation and training of nursing and health professionals in general.

Ana Claudia Arroyo Cruz

Nurse, Postgraduate in Business Administration from the *Fundação Getúlio Vargas*, Senior Realistic Simulation Analyst.

Ana Paula Novaes

Graduated in Nursing from the *Universidade de São Paulo* and in Hospital Administration from *União Social Camiliana*, specialist in Quality and Productivity Management from *the Fundação Carlos Alberto Vanzolini* and MBA in Health Economics and Management from the *Universidade Federal de São Paulo*. She holds a Master's degree in Nursing. She is a consultant in assessment processes using the Joint Commission International (JCI), National Accreditation Organization (ONA) and ISO series methodologies. She is the author of the refresher course Introduction to Quality and Safety and Process Management, in distance learning mode. She is currently quality manager at the Center for Education and Research Albert Einstein.

Andreia Cristina Feitosa do Carmo

She holds a bachelor's degree in Library Science from the *Universidade Estadual Paulista "Júlio de Mesquita Filho"* (1995), a specialization in Educational Information Services - Proesi from the *Universidade de São Paulo* (1999), a specialization in Information Systems and Services from the *Fundação Escola de Sociologia e Política de São Paulo* (2010), a master's degree in Translational Surgery from the *Universidade Federal de São Paulo* (2018) and an apprenticeship in Research Methodology and Elaboration from the *Universidade Federal de São Paulo* (2005). She is currently a Librarian at the *Universidade Federal de São Paulo*. She has experience in Information Science, with an emphasis on Information Theory.

Augusto Scalabrini

Head of the Skills and Simulation Department at the *Faculdade Ciências Médicas de Minas Gerais* (FCM-MG); General and Didactic Coordinator of the Skills and Simulation Laboratory at FCM-MG; Coordinator of the Skills and Simulation Laboratory at the *Faculdade de Medicina, Universidade de São Paulo*; Honorary Fellow of the FLASIC (*Federación Latinoamericana de Simulación Clínica y Seguridad del Paciente)*; Fellow of the ABRAMEDE (Brazilian Association of Emergency Medicine).

Brena Carvalho Pinto de Melo

Graduated in Medicine from the *Universidade Federal de Pernambuco*, Medical Residency in Obstetrics and Gynecology at the *Instituto de Medicina Integral Professor Fernando Figueira* - IMIP, Medical Residency in General Surgery at the General Surgery and Liver Transplant Service of the *Hospital Universitário Oswaldo Cruz*, *Universidade de Pernambuco*, Master's Degree in Maternal and Child Health from IMIP and Ph.D. from the University of Maastricht - Holland. Coordinator of the Simulation Center (CSim) at *Faculdade Pernambucana de Saúde* (FPS), affiliated to the Center for Realistic Simulation at *Hospital Israelita Albert Einstein*.

Bruno Figueiredo Müller

Bruno Figueiredo Müller is the Medical Coordinator of the Surgical Network at *Hospital Israelita Albert Einstein*. Surgeon graduated from the *Faculdade de Ciências Médicas, Santa Casa de São Paulo*, Specialization in Coloproctology and Robotic Surgery, *Hospital Israelita Albert Einstein*, Specialist/MBA in Hospital Administration from the *Escola de Administração de Empresas de São Paulo, Fundação Getúlio Vargas* and *Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo*, Entrepreneurship and Innovation in Health Program at the *Hospital Israelita Albert Einstein*, Design Thinking Chaz and Eretz.bio, Scrum Product Owner Certified, Green Belt Lean Six Sigma.

Camila de Araujo Alves Ferreira

Nurse specialized in Intensive Care and Operational Excellence with Green Belt certification from the *Instituto Israelita de Ensino e Pesquisa Albert Einstein, Hospital Israelita Albert Einstein*. She works as a Simulation Analyst, developing training based on the Realistic Simulation methodology.

Carla Souza Behr Pitoli

She is currently Project Manager of the Einstein Excellence Office at *Hospital Israelita Albert Einstein* and responsible for the Planetree Brazil Office. She was Quality and Accreditation Manager at the same institution, where she has worked for 18 years. She has worked in other organizations such as *Hospital Sírio-Libanês*, *Nestlé Brasil* and *Monsanto do Brasil*. She is a CPXP - Certified Patient Experience Professional by the Patient Experience Institute (PXi) in the United States, Improvement Advisory by the Institute for Healthcare Improvement (IHI). MBA in Executive Health Management from *Insper*/SP. Specialist in Quality and Productivity from the *Universidade de São Paulo* (USP). Bachelor's and Master's degree in Pharmacy-Biochemistry from USP and Green Belt.

Carolina Felipe Soares Brandão

Ph.D. and master's in science from the *Universidade Federal de São Paulo*, specialist in health administration from the *Universidade de São Paulo*. Coordinator of the Simulated Hospital of the Medicine Course at the *Universidade Cidade de São Paulo* and the *Universidade Municipal de São Caetano do Sul* (Campus Centro) and assistant coordinator of the postgraduate course in advanced simulation at IPEMED. Founding member, former president and current board member of the SOBRASSIM (*Sociedade Brasileira de Simulação na Saúde*). Fellow in simulation and patient safety by the Latin Federation of Simulation and Patient Safety.

Cláudia Camargo de Carvalho Vormitagg

Pediatrician specialized in Allergy and Immunology at the *Irmandade da Santa Casa de Misericórdia de São Paulo*. Postgraduate in pediatrics and child health from Imperial College London, UK. Professor of medicine at the *Centro Universitário das Faculdades Associadas de Ensino*. Master's student in Health Education at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*.

Danielle Saad Nemer

An emergency pediatrician, she works as a Medical Practitioner at the UPAs (community care) of the *Instituto Israelita de Responsabilidade Social* (IIRS) and now as a Technical Reference for Pediatrics at the Morumbi UPA, Assistant Physician at the emergency unit referred to the *Instituto da Criança e do Adolescente, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo*.

Danielly Guimarães Gonçalves

Hospital Israelita Albert Einstein.

Dario Cecilio-Fernandes

Dario Cecilio-Fernandes is currently a researcher at the Department of Medical Psychology and Psychiatry, Faculty of Medical Sciences, *Universidade Estadual de Campinas*, with a Young Researcher project funded by the FAPESP - *Fundação de Amparo à Pesquisa do Estado de São Paulo*. He is a psychologist with a master's degree from the University of San Francisco and a doctorate from the University of Groningen, with experience in research, intervention and evaluation in the educational context. He also works as an ASPIRE evaluator for AMEE's Technology Enhanced Learning committee and was president of the SOBRASSIM (*Sociedade Brasileira de Simulação na Saúde*).

Desirée Gonçalves

Realistic Simulation Analyst for 6 years.
Nurse specialized in Urgency and Emergency at *Santa Casa de São Paulo*.

Dourival Sabino Gomes Filho

Economist by training, Operations Supervisor of the Realistic Simulation Technical Group, Administrative and Financial Supervisor of the Realistic Simulation Center.

Durval Anibal Daniel

Pediatrician, graduated from the *Universidade de São Paulo* in 1980, member of the clinical staff of *Hospital Israelita Albert Einstein*. He coordinates the undergraduate medical course at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein* and is responsible for the admission process.

Elda Maria Stafuzza Gonçalves Pires

Pediatrician, specialist in Allergy and Immunology. Master in Education from the University of Maastricht, Netherlands. Academic Coordinator of the Undergraduate Medical Program at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*.

Felipe Wilker Grillo

He has a degree in medical physics from the *Universidade de São Paulo*, a master's degree and a doctorate from the Physics Applied to Medicine and Biology program from the *Universidade de São Paulo*. A specialist in the development of simulators for medical training and medical simulation, he is a founding partner of the company Tagmavisions and founding partner and CEO of the company *Gphantom Simuladores para Treinamento*.

Geana Silva do Santos

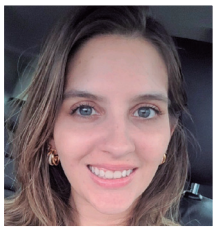
Ph.D. and Master's in Production Engineering, *Universidade Federal do Rio Grande do Sul*, Bachelor Degree in Nursing, *Universidade do Vale do Rio dos Sinos* (UNISINOS). Experience in developing simulation products (Placebex, Hybrid Arm and SimPunction- Health Engineering). Educational Manager at *Laerdal*/Brazil.

Giulia Paulino Sampaio Costa

Hospital Israelista Albert Einstein.

Henrique Pierotti Arantes

MSc and Ph.D. in Endocrinology from the *Universidade Federal de São Paulo;* Full Professor at the *IMEPAC Centro Universitário*, Araguari/MG; Coordinator of the Realistic Simulation Center (CSR) of the *IMEPAC Centro Universitário*, Araguari/MG; Director of Education and Research at the *Hospital Universitário Sagrada Família*, Araguari/MG.



Jadde Rocha Diniz Afonso

She has a degree in psychology and a postgraduate degree in strategic business management. She has 12 years' experience in Human Resources, working in Attraction, Selection and Diversity. She is currently the Attraction and Selection Coordinator at *Hospital Israelita Albert Einstein*. She also works as a guest lecturer on postgraduate and technical courses, and is in charge of social impact projects and employer branding.

Jaqueline Aline de Oliveira

Jaqueline Oliveira is a nurse specialized in Digital Health Education at the *Instituto Israelita de Ensino e Pesquisa Albert Einstein, Hospital Israelita Albert Einstein*. She currently works in Corporate Education as a senior training and development analyst.

João Carlos Bittencourt

Ph.D. in Business Administration from the *Universidade de São Paulo*. Master's in Strategic Management of Organizations from the *Universidade do Estado de Santa Catarina*, Specialist in People Management. Experience in the field of Management of Higher Education Institutions, implementation of Training and Development programs, Leadership Development and Innovative Pedagogical Architectures. Lecturer in the areas of Management and People Management, Leadership and Innovation in Management. Researcher on Teaching and Learning in Undergraduate and Postgraduate programs, as well as pedagogical models in Professional Masters and Innovative Pedagogical Architectures. He was an academic consultant at the *Editora Saraiva*, technical education system manager at the *Editora Érica* and General Coordinator of Postgraduate Studies and Research at the *Instituto Singularidades*. He was coordinator of the MBA and Health Management Programs at the *Sociedade Beneficente Israelita Brasileira Albert Einstein*. He is a certified consultant in Assessment by the Center for Creative Leadership (CCL®). He coordinates the Undergraduate Program in Administration and is a member of the Structuring Teaching Nucleus (NDE) of the Undergraduate Programs in Nutrition and Psychology at *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*.

José Batista Cisne Tomaz

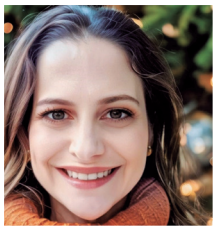
Graduated in Medicine from the *Universidade Federal do Ceará* (1984), Specialist in Clinical Medicine from the Brazilian Society of Clinical Medicine (1993), Master in Primary Health Care Management from the *Instituto Superiore di Sanità* - Roma, Italy (1995); Master in Education for the Health Professions from the University of Maastricht (2004), Netherlands; Ph.D. in Education for the Health Professions with an emphasis on Distance Education from Erasmus University, Rotterdam, Netherlands (2013); Specialist in Clinical Management in Healthcare Networks from the *Sírio-Libanês Ensino e Pesquisa* (2010). He is currently the Educational Development Advisor at *the Escola de Saúde Pública do Ceará*.

José Roberto Generoso Júnior

Professor Doctor CHSE-A, CHSOS-A; President of the SOBRASSIM (*Sociedade Brasileira de Simulação na Saúde*).

Joyce Kelly Silva Barreto

Physiotherapist graduated from the *Escola Bahiana de Medicina e Saúde Pública*, Specialist in Intensive Care from the *Universidade Federal de São Paulo*, Certified in Health Management by *Insper*, Master in Health Teaching by the *Instituto Israelita de Ensino e Pesquisa Albert Einstein, Hospital Israelita Albert Einstein*, member of the SOBRASSIM (*Sociedade Brasileira de Simulação na Saúde*), SSH (Society for Simulation in Healthcare) and SESAM (Society in Europe for Simulation Applied to Medicine). Manager of the Center for Realistic Simulation at *Hospital Israelita Albert Einstein*.



Juliana Faria Campos

CNPq Productivity and Research Fellow Level 2. Graduated, Master's and Doctorate in Nursing from the *Escola de Enfermagem, Universidade de São Paulo*, Ribeirão Preto. Post-Doctorate from the Nursing School of Coimbra. She is an Associate Professor of Medicine at the *Faculdade de Odontologia de Bauru, Universidade de São Paulo* (FOB) . She is the Coordinator of the Center for Education and Training in Healthcare (CECS - *Centro de Educação e Capacitação em Saúde*) at the Bauru Campus (FOB/USP).

Juliana Wentzcovitch Rebouças

Hospital Israelista Albert Einstein.

Júlio Cesar Martins Monte

Academic Director of the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*. Clinical Staff Physician at *Hospital Israelita Albert Einstein*.

Karina Tavares Timenetsky

Higher Education Manager of Einstein's Physiotherapy Undergraduate Program, Ph.D. in Sciences from the *Faculdade de Medicina, Universidade de São Paulo*, Faculty Member of the Postgraduate Program and Professional Master's Program at *Hospital Israelita Albert Einstein*.

Katharina Reichmann Rodrigues

Assistant physician at the Integrated Pediatric Emergency Referral Center (CIERP - *Centro Integrado de Emergência Referenciada Pediátrica*) of the *Instituto da Criança e do Adolescente, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo*, where she coordinates the teaching activities of pediatric residents. Preceptor of the pediatric emergencies internship at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*. Realistic Simulation Instructor and PALS Instructor, certified by the Center for Realistic Simulation at *Hospital Israelita Albert Einstei*n.

Letícia Mello Bezinelli

MSc and Ph.D. in Dental Sciences from the *Universidade de São Paulo*. Specialist in dentistry for special patients from the *Fundecto - Fundação Faculdade de Odontologia, Faculdade de Odontologia, Universidade de São Paulo* (FFO/USP). Qualified in Hospital Dentistry and Laser Therapy. MBA in Business Management from the *Universidade de São Paulo*.

Luciana Machado Paschoal

Specialist in Geriatrics at *Hospital Israelita Albert Einstein*. Master's student in Health Education at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*. Preceptor at the Internal Medicine outpatient clinic of the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*. She worked as a medical preceptor in the Geriatrics Residency Program at *Hospital Israelita Albert Einstein*.

Marcella Zuliani Lopes Soares

Nurse, Postgraduate from the *Universidade de São Paulo* in Intensive and Emergency Care for Newborns, Children and Adolescents, Realistic Simulation Analyst.

Marcelo Arlindo

A graduate physician from the *Faculdade de Medicina, Universidade de São Paulo* (FMUSP), he completed a residency in Internal Medicine at the FMUSP *Hospital das Clínicas*, was a preceptor for the 5th year of the FMUSP Internal Medicine residency and completed his doctorate in Medical Education at the *Universidade de São Paulo*. He is head of the Outpatients Section and coordinator of the 6th year FMUSP internship at the *Hospital Universitário, Universidade de São Paulo* and manager of the medical course at the São Paulo campus of the *Universidade Municipal de São Caetano do Sul*.

Maria Florencia Conzi

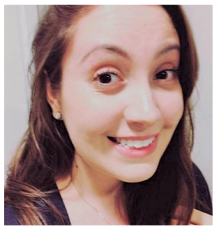
Graduated in Medicine from the University of Buenos Aires. Master's Degree in Pediatrics and Sciences Applied to Pediatrics from the *Universidade Federal de São Paulo*. Certified Specialist in Pediatrics and Neonatology by the University of Buenos Aires. Instructor in Clinical Simulation at PennState College of Health and Human Development Clinical Simulation Center.

Maria Isabela Bueno de Lima

Graduated from the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*; Postgraduate degree from the *Fundação Getúlio Vargas*; Training specialist validated by Intuitive; Master's student in Health Sciences.

Maria Stella Peccin

Associate Professor at the *Universidade Federal de São Paulo* (UNIFESP), Ph.D. in Sciences and Master in Rehabilitation at UNIFESP. Supervisor of the Postgraduate Programs in Evidence-Based Health and Interdisciplinary Health Sciences at UNIFESP, Leader of the CNPQ Research Group on Evidence-Based Practice, Researcher at the Cochrane Center in Brazil. Vice-coordinator of the International Collaborating Center of BEME - Best Evidence Medical Education.

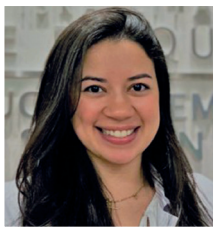


Mariana Rosati Borges

Nurse graduated from *Centro Universitário São Camilo*, specialized in Corporate Education from SENAC - *Serviço Nacional de Aprendizagem Comercial* and in the Surgical Center from *Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo*. Realistic Simulation Analyst at *Hospital Israelita Albert Einstein*.

Mariana Santos Alecrim Molina

Nurse, post-graduate in Operational Excellence in Healthcare, Master's student in Healthcare Education and Coordinator of the Center for Realistic Simulation at *Hospital Israelita Albert Einstein*.



Mayara Galetti

Hospital Israelista Albert Einstein.

Midiã Martinez Matias

Degree in Nursing. Specialized in Corporate Education and Postgraduate Degree in Learning and Innovation.

Mislane Bezerra Soares

Degree in Nursing. Postgraduate in Nursing Management. Postgraduate in Health Education.

Paula Dias de Toledo Rodovalho Menezes

Nurse, Specialist in Cardiology at the *Universidade Federal de São Paulo* and Master in Health Education at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*.

Paulo Schor

Surgeon, Associate Professor and permanent Advisor to the Postgraduate Programs in Visual Sciences and Technological Innovation. Former Research Coordinator, Head of Department and Director of Innovation at the *Universidade Federal de São Paulo*. He is currently São Paulo Research Foundation's (FAPESP - *Fundação de Amparo à Pesquisa do Estado de São Paulo).* Deputy Research Coordinator for Innovation and a Fellow for Productivity in Technological Development and Innovative Extension (CNPq level 1D).

Pedro Paulo Prata da Cruz

He has a medical degree from the *Universidade Estácio de Sá* in Rio de Janeiro, a postgraduate degree in family medicine from the *Universidade do Estado do Rio de Janeiro* (UERJ/UNA-SUS), a postgraduate degree in medical emergencies and a Master's degree in health teaching from the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein* in São Paulo. He is a faculty member on the medical courses at the Universidade de Vassouras/RJ, *Universidade Estácio de Sá* - IDOMED (*Instituto de Educação Médica*)/RJ and is president of the study center at *Rede Hospital Casa* in Rio de Janeiro.

Priscilla Cerullo Hashimoto

Nurse, postgraduate in permanent education in healthcare. Master's degree in nursing with an emphasis on education. She is currently coordinator of the Center for Realistic Simulation at *Hospital Israelita Albert Einstein*.

Rafael da Silva Giannasi Severino

Graduation and Residency in Pediatrics from the *Universidade de São Paulo*. Specialist in Pediatrics and Pediatric Emergencies by the Brazilian Society of Pediatrics. Assistant physician at the Emergency Department of the *Instituto da Criança e do Adolescente, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo.* On-call doctor at the Pediatric Emergency Department of *Hospital Israelita Albert Einstein*.

Renato Melli Carrera

He has a degree in medicine from the *Faculdade de Ciências Médicas, Santa Casa de São Paulo* (1988), a Master's degree in Research in Surgery from the *Faculdade de Ciências Médicas, Santa Casa de São Paulo* (1998) and a Ph.D. in Research in Surgery from the *Faculdade de Ciências Médicas, Santa Casa de São Paulo* (2003). He is currently Teaching Manager at the *Sociedade Beneficente Israelita Brasileira Albert Einstein*, Coordinator of COREME - Einstein at the *Sociedade Beneficente Israelita Brasileira Albert Einstei*n and Medical Professor at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*. He has experience in Medicine, with an emphasis on Medicine, working mainly on the following subjects: pediatric trauma and pediatric surgery.

Rosane Oliveira Simões

Postgraduate nurse from the *Universidade Federal de São Paulo*. Specialist in Improvement Science by the Institute for Healthcare Improvement (IHI). Patient Safety Consultant at *Hospital Israelita Albert Einstein*.

Selma Tavares Valério

Nurse, coordinator of corporate education at *Sociedade Beneficente Israelita Brasileira Albert Einstein*. She holds a Master's degree in Health Education from the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein* (FICSAE), specializing in Infection Prevention and Control from the *Universidade Federal de São Paulo* and Geriatrics and Gerontology Nursing (FICSAE, 1997). She has been working in corporate training and teaching for over 10 years.

Sidney Klajner

President of *Sociedade Beneficente Israelita Brasileira Albert Einstein*.

Stephany de Freitas Tomaz de Freitas

Hospital Israelita Albert Einstein.

Thomaz Bittencourt Couto

Emergency pediatrician. MSc and Ph.D. in Sciences from the *Faculdade de Medicina, Universidade de São Paulo*. MBA in Health Management from the *Instituto Israelita de Ensino e Pesquisa Albert Einstein, Hospital Israelita Albert Einstein*. Professor of medicine at the *Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein*. Physician at the Center for Realistic Simulation at *Hospital Israelita Albert Einstein*. Assistant Physician at the Emergency Department of the *Instituto da Criança e do Adolescente, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo*. Certified as an Advanced Educator in Healthcare Simulation by the Healthcare Simulation Society (CHSE-A).

Wagner Galletti Valença

He studied Business Administration and furthered his training through professional development programs, both in Brazil and abroad (Bogotá and Puerto Rico) in the areas of Management, Administration, Sales, Customer Service, Conflict and Risk Management, Neurolinguistics, Emotional Intelligence, Communication, Teamwork, among others. He develops and applies behavioral training, classes, debriefing in Realistic Simulation scenarios and lectures in the areas of efficacy associated to his training and aimed at personal and professional development (focusing on health areas for the last 15 years).

Yara Kimiko Sako

First Aid Unit nurse at *Hospital Israelita Albert Einstein* for 26 years. Instructor of the American Heart Association's Basic Life Support (BLS), Advanced Pediatric Life Support and Advanced Cardiac Life Support (ACLS) courses. BLS certified instructor at the Albert Einstein Training Center. Instructor of customized emergency courses at the Center for Realistic Simulation at *Hospital Israelita Albert Einstei*n.

Scientific Program

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September 01, 2023 | Friday						
Pre-Symposium Workshops Camilla Bueno Auditorium | CEP (Research and Education Center)Rooms | CESAS Rooms						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
08:00	12:00	04:00	WORKSHOP 1: ESCAPE WITH SIMULATION [*Face-to-face*] The Escape room is also a tool used as a learning strategy. Within a lifelike environment, the participant will decipher codes, unravel riddles and clues that will provide elements for interacting with the simulated patient, and will thus be able to practice clinical reasoning, logic, teamwork, decision-making and situational awareness within a given timeframe. Different topics can be covered in this practice, providing reflection on practice in a playful and interactive way.	Coordinator Coordinator	Ana Claudia Arroyo Cruz Marcella Zuliani Lopes Soares	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
08:00	09:40	01:40	Escape with Simulation	Speaker Speaker	Marcella Zuliani Lopes Soares Ana Claudia Arroyo Cruz	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
09:40	10:00	00:20	Break			
10:00	12:00	02:00	Escape with Simulation	Speaker Speaker	Ana Claudia Arroyo Cruz Marcella Zuliani Lopes Soares	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
08:00	12:00	04:00	WORKSHOP 2: TELESIMULATION [*Online*] Telesimulation allows students to interact virtually and realistically with the team, the patient and their family. What did this experience give us? What skills can be practiced? How can students be engaged in the teaching and learning process? What adaptations are needed? How can different students and professionals be trained remotely using telesimulation?	Coordinator	Desirée Gonçalves	Hospital Israelita Albert Einstein
08:00	09:40	01:40	Telesimulation	Speaker Speaker	Mayara Galetti Desirée Gonçalves	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
09:40	10:00	00:20	Break			
10:00	12:00	02:00	Telesimulation	Speaker Speaker	Desirée Gonçalves Mayara Galetti	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
08:00	12:00	04:00	WORKSHOP 3: OSCE [*Face-to-face*] The Objective Structured Clinical Examination (OSCE) makes it possible to assess the knowledge, skills and attitudes of students and trained professionals. How can we use simulators, standardized patients and the simulated environment to carry out practical assessments? What tools do we have to control the quality of our assessment? How can we use OSCEs outside the academic environment as a selection tool? This workshop will discuss these aspects, and will also allow participants to build and pilot-test an OSCE station.	Coordinator Coordinator	Thomaz Bittencourt Couto Camila de Araujo Alves Ferreira	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
08:00	09:40	01:40	OSCE	Speaker Speaker Speaker	Thomaz Bittencourt Couto Camila de Araujo Alves Ferreira Juliana Wentzcovitch Rebouças	Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein Hospital Israelita Albert Einstein
09:40	10:00	00:20	Break			

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September 01, 2023 | Friday						
Pre-Symposium Workshops Camilla Bueno Auditorium | CEP (Research and Education Center)Rooms | CESAS Rooms						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
10:00	12:00	02:00	OSCE	Speaker	Camila de Araujo Alves Ferreira	Hospital Israelita Albert Einstein
				Speaker	Juliana Wentzcovitch Rebouças	Hospital Israelita Albert Einstein
				Speaker	Thomaz Bittencourt Couto	Hospital Israelita Albert Einstein
08:00	12:00	04:00	WORKSHOP 4: IN SITU SIMULATION [*Face-to-face*] In Situ Simulation is a technique used to train healthcare staff at their place of work. The team can experience a real situation, which can help them test skills such as teamwork, communication and situational awareness, as well as identify points for improvement during the systematic evaluation of care and the detection of latent threats to the safety of the team and the patient. How do you deal with a conflict situation? What if you run out of supplies? How do you approach the team in a simulation with latent threats on site? How do you ensure the psychological safety of students in a real environment?	Coordinator	Mislane Bezerra Soares	Hospital Israelita Albert Einstein
08:00	09:40	01:40	In Situ Simulation	Speaker	Mislane Bezerra Soares	Hospital Israelita Albert Einstein
				Speaker	Danielle Saad Nemer	Hospital Israelita Albert Einstein
				Speaker	Giulia Paulino Sampaio Costa	Hospital Israelita Albert Einstein
09:40	10:00	00:20	Break			
10:00	12:00	02:00	In Situ Simulation	Speaker	Mislane Bezerra Soares	Hospital Israelita Albert Einstein
				Speaker	Danielle Saad Nemer	Hospital Israelita Albert Einstein
				Speaker	Giulia Paulino Sampaio Costa	Hospital Israelita Albert Einstein
08:00	12:00	04:00	WORKSHOP 5: BREAKING DIFFICULT NEWS [*Face-to-face*] In healthcare practice we are often faced with the need to break difficult news to our patients. However, students and professionals are seldom prepared for this situation. In this workshop we will review methods of communicating difficult news and address techniques for teaching communication, including role play and simulation scenarios using standardized patients.	Coordinator	Mariana Rosati Borges	Hospital Israelita Albert Einstein
08:00	09:40	01:40	Breaking Difficult News	Speaker	Mariana Rosati Borges	Hospital Israelita Albert Einstein
				Speaker	Katharina Reichmann Rodrigues	Hospital Israelita Albert Einstein
				Speaker	Wagner Galletti Valença	Entrepreneur
				Speaker	Danielly Guimaraes Goncales	Hospital Israelita Albert Einstein
09:40	10:00	00:20	Break			
10:00	12:00	02:00	Breaking Difficult News	Speaker	Katharina Reichmann Rodrigues	Hospital Israelita Albert Einstein
				Speaker	Danielly Guimaraes Goncales	Hospital Israelita Albert Einstein
				Speaker	Wagner Galletti Valença	Entrepreneur
				Speaker	Mariana Rosati Borges	Hospital Israelita Albert Einstein

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September 01, 2023 | Friday						
Pre-Symposium Workshops **Camilla Bueno Auditorium | CEP (Research and Education Center)Rooms | CESAS Rooms**						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
08:00	12:00	04:00	WORKSHOP 6: RCDP [*Face-to-face*] In RCDP simulation, the aim is to achieve perfect practice through small scenarios of increasing complexity. The instructor's role is active, with direct and frequent feedback aimed at adapting the participants' performance to what is considered ideal. Questions are answered during the scenarios and the exchange between students and instructor is continuous. What is the difference between traditional simulation and RCDP? How can we use this method in different scenarios? Is it the ideal method for all types of scenarios? How is feedback given and how can the instructor be trained? Join us for this workshop and learn how to implement this methodology in your Simulation Center/Laboratory!	Coordinator	Midiã Martinez Matias	Hospital Israelita Albert Einstein
08:00	09:40	01:40	RCDP	Speaker	Yara Kimiko Sako	Hospital Israelita Albert Einstein
				Speaker	Ana Carolina Invencione Porto	Hospital Israelita Albert Einstein
				Speaker	Rafael da Silva Giannasi Severino	Hospital Israelita Albert Einstein
				Speaker	Midiã Martinez Matias	Hospital Israelita Albert Einstein
09:40	10:00	00:20	Break			
10:00	12:00	02:00	RCDP	Speaker	Yara Kimiko Sako	Hospital Israelita Albert Einstein
				Speaker	Ana Carolina Invencione Porto	Hospital Israelita Albert Einstein
				Speaker	Rafael da Silva Giannasi Severino	Hospital Israelita Albert Einstein
				Speaker	Midiã Martinez Matias	Universidade Estadual de Campinas
08:00	12:00	04:00	WORKSHOP 7: SIMULATION RESEARCH [*Face-to-face*] Simulation research allows us to understand how our students learn and the impact of simulation on patient outcomes, procedural techniques, team management and other clinical practices. In a pedagogical and interactive way, we will discuss all the stages of building a simulation research project, from initial conception to publication. Bring your research idea and let's work together to perfect your project.	Coordinator	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
				Coordinator	Mariana Santos Alecrim Molina	Hospital Israelita Albert Einstein
08:00	09:40	01:40	Simulation Research	Speaker	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
				Speaker	Mariana Santos Alecrim Molina	Hospital Israelita Albert Einstein
				Speaker	Stephany de Freitas Tomaz de Freitas	Hospital Israelita Albert Einstein
				Facilitator	Andreia Cristina Feitosa do Carmo	Universidade Federal de São Paulo - Escola Paulista de Medicina
				Facilitator	Maria Stella Peccin	Hospital Israelita Albert Einstein
				Facilitator	Alessandra Mazzo	Universidade de São Paulo
				Facilitator	Felipe Wilker Grillo	Gphantom Simuladores para treinamento

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September 01, 2023 | Friday						
Pre-Symposium Workshops Camilla Bueno Auditorium | CEP (Research and Education Center)Rooms | CESAS Rooms						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
09:40	10:00	00:20	Break			
10:00	12:00	02:00	Simulation Research	Speaker	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
				Speaker	Mariana Santos Alecrim Molina	Hospital Israelita Albert Einstein
				Speaker	Stephany de Freitas Tomaz de Freitas	Hospital Israelita Albert Einstein
				Facilitator	Andreia Cristina Feitosa do Carmo	Universidade Federal de São Paulo - Escola Paulista de Medicina
				Facilitator	Maria Stella Peccin	Hospital Israelita Albert Einstein
				Facilitator	Alessandra Mazzo	Universidade de São Paulo
				Facilitator	Felipe Wilker Grillo	Gphantom Simuladores para treinamento
SYMPOSIUM | HYBRID Camilla Bueno Auditorium						
13:00	13:30	00:30	Opening Session	Presenter Recording	Sidney Klajner	Sociedade Beneficente Israelita Brasileira Albert Einstein
				Presenter	Alexandre Holthausen Campos	Instituto Israelista de Ensino e Pesquisa Albert Einstein
				Presenter	Joyce Kelly Silva Barreto	Hospital Israelita Albert Einstein
				Presenter	Júlio Cesar Martins Monte	Faculdade Israelita de Ciências da Saúde Albert Einstein
13:30	14:10	00:40	KEYNOTE 1: THE FUTURE OF SIMULATION	International Speaker	Rodrigo Rubio Marcnez	Hospital ABC
14:10	14:50	00:40	Simulação de distância	Remote International Speaker	Vinay M. Nadkarni	Hospital of Philadelphia
14:50	15:10	00:20	Break			
15:10	17:30	02:20	ASSESSMENT TRACK [*Face-to-face*]	Moderator	Priscilla Cerullo Hashimoto	Hospital Israelita Albert Einstein
			OSCE	Speaker	Marcelo Arlindo	Hospital Universitário, Universidade de São Paulo e Universidade Municipal São Caetano do Sul
			MMI	Speaker	Durval Anibal Daniel	Hospital Israelita Albert Einstein
			Using Simulation to Select Residents	Speaker	Renato Melli Carrera	Hospital Israelita Albert Einstein
15:10	17:30	02:20	EDUCATION TRACK [*Hybrid*]	Moderator	Thomaz Bittencourt Couto	Hospital Israelita Albert Einstein
			Simulation based curriculum development	Remote International Speaker	Deborah D. Navedo	STRATUS Simulation Center, Mass General Brigham Clinical Perspectives Education Consulting, President
			Using a Debriefing Assessment Tool - DASH	Speaker	Maria Florencia Conzi	Universidade Federal de São Paulo - Escola Paulista de Medicina
			Interprofessional Education	Speaker	Cláudia Camargo de Carvalho Vormitagg	Centro Universitário das Faculdades Associadas de Ensino-FAE (UNIFAE)

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September 01, 2023 | Friday						
Pre-Symposium Workshops Camilla Bueno Auditorium | CEP (Research and Education Center)Rooms | CESAS Rooms						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
15:10	17:30	02:20	MANAGEMENT TRACK [*Face-to-face*]	Moderator	Midiã Martinez Matias	Hospital Israelita Albert Einstein
			Making a Simulation Center Sustainable	Speaker	Joyce Kelly Silva Barreto	Hospital Israelita Albert Einstein
			Quality	Speaker	Ana Paula Novaes	Hospital Israelita Albert Einstein
			Using Simulation for Management Training	Speaker	João Paulo Bittencourt	Faculdade Israelita de Ciências da Saúde Albert Einstein (FICSAE)
15:10	17:30	02:20	RESEARCH TRACK [*Face-to-face*]	Moderator	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
			Simulation Research: Local and Global Overview	Speaker	Maria Stella Peccin	Hospital Israelita Albert Einstein
				Speaker	Alessandra Mazzo	Universidade de São Paulo
				Speaker	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
			Scientific Paper Presentation	Speaker	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
				Speaker	Candidates	Others Institutions
17:30			Closing remarks			

IV EINSTEIN INTERNATIONAL SYMPOSIUM ON SIMULATION September 01 and 02, 2023 | Friday						
September 02, 2023 | Saturday						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
08:30	09:10	00:40	KEYNOTE 2: LESSONS LEARNED FROM THE PANDEMIC IN HEALTH EDUCATION	International Speaker Remote	Peter Dieckmann	Copenhagen Academy for Medical Education and Simulation (CAMES)
09:10	09:40	00:30	Simulation and Robotic Surgery Crisis Management	Speaker	Maria Isabela Bueno de Lima	Hospital Israelita Albert Einstein
				Speaker	Bruno Figueiredo Muller	Hospital Israelita Albert Einstein
				Speaker	Mariana Santos Alecrim Molina	Hospital Israelita Albert Einstein
09:40	10:10	00:30	Break			
10:10	11:40	01:30	EVALUATION TRACK [*Face-to-face*]	Moderator	Desirée Gonçalves	Hospital Israelita Albert Einstein
			Factors Influencing Adoption by Faculty	Remote Speaker	Pedro Paulo Prata da Cruz	IDOMED
			Feedback - R2C2	Speaker	Luciana Machado Paschoal	Hospital Israelita Albert Einstein
			EPAS	Speaker	Elda Maria Stafuzza Gonçalves Pires	Hospital Israelita Albert Einstein
10:10	11:40	01:30	TEACHING TRACK [*Hybrid*]	Moderator	Ana Claudia Arroyo Cruz	Hospital Israelita Albert Einstein
			Simulation in Multiprofessional Undergraduate Education	Speaker	Letícia Mello Bezinelli	Hospital Israelita Albert Einstein
				Speaker	Karina Tavares Timenetsky	Hospital Israelita Albert Einstein
			Team Assessment - Using the TEAMS Tool	Speaker	Paula Dias de Toledo Rodovalho Menezes	Hospital Israelita Albert Einstein
			Healthcare Crisis Resource Management	Speaker	Rosane Oliveira Simões	Hospital Israelita Albert Einstein
				Speaker	Thomaz Bittencourt Couto	Hospital Israelita Albert Einstein
				Speaker	Jaqueline Aline de Oliveira	Hospital Israelita Albert Einstein
10:10	11:40	01:30	SYSTEMS INTEGRATION TRACK [*Face-to-face*]	Moderator	Mariana Rosati Borges	Hospital Israelita Albert Einstein
			Simulation and Person-Centered Care	Speaker	Carla Souza Behr Pitoli	Hospital Israelita Albert Einstein
			Patient Journey: Sequential Simulation	Speaker	Priscilla Cerullo Hashimoto	Hospital Israelita Albert Einstein
			Using Simulation for Certification	Speaker	Selma Tavares Valério	Hospital Israelita Albert Einstein
10:10	11:40	01:30	RESEARCH TRACK [*Face-to-face*]	Moderator	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
			Research on Development of Simulators	Speaker	Felipe Wilker Grillo	Gphantom Simuladores para Treinamento
			Research Integration into Other Fields of Practice	Speaker	Juliana Faria Campos	Universidade de São Paulo
			Scientific Paper Presentation	Speaker	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
				Speaker	Candidates	Others Institutions
11:40	12:30	00:50	Break			
SYMPOSIUM | HYBRID Camilla Bueno Auditorium						
12:30	13:00	00:30	Laerdal Satellite Symposium - Data management system as a tool for systemic longitudinal assessment of clinical practices	Speaker	Geana Santos	Laerdal Brasil
13:00	13:30	00:30	Integrating Virtual Learning and Simulation	Speaker	José Batista Cisne Tomaz	Escola de Saúde Pública do Ceará
13:30	14:10	00:40	KEYNOTE 3: LOW COST SIMULATION	International Speaker	Rodrigo Rubio Marcnez	Hospital ABC

continue...

...Continuation

September 02, 2023 | Saturday						
Start Time	**Finish Time**	**Duration**	**Activity**	**Activity**	**Speaker**	**Institution**
14:10	14:40	00:30	FLASIC and Simulation in Latin America	Speaker	Alessandra Vaccari	Universidade Federal do Rio Grande do Sul
14:40	15:10	00:30	Simulation Instructional Design	Speaker	Brena Carvalho Pinto de Melo	Hospital Israelita Albert Einstein
15:10	15:30	00:20	Break			
15:30	17:00	01:30	SYSTEMS INTEGRATION TRACK [*Face-to-face*]	Moderator	Ana Claudia Arroyo Cruz	Hospital Israelita Albert Einstein
			In Situ	Speaker	Danielle Saad Nemer	Hospital Israelita Albert Einstein
			Simulation Zones	Speaker	Henrique Pierotti Arantes	Centro Universitário IMEPAC
			Using Simulation to Recruit Professionals	Speaker	Jadde Rocha Diniz Afonso	Hospital Israelita Albert Einstein
15:30	17:00	01:30	EDUCATION TRACK *Hybrid*	Moderator	Mariana Rosati Borges	Hospital Israelita Albert Einstein
			Fresh frozen cadaver	Speaker	Carolina Felipe Soares Brandão	Universidade Cidade de São Paulo, Universidade Municipal de São Caetano do Sul, IPEMED
			Peer Defriefing	Speaker	Augusto Scalabrini	Faculdade de Medicina, Universidade de São Paulo
			Simulation-Debriefing-Simulation	Speaker	Katharina Reichmann Rodrigues	Hospital Israelita Albert Einstein
15:30	17:00	01:30	MANAGEMENT TRACK [*Face-to-face*]	Moderator	Priscilla Cerullo Hashimoto	Hospital Israelita Albert Einstein
			Accreditations	Speaker	Thomaz Bittencourt Couto	Hospital Israelita Albert Einstein
			The Importance of a Simulation Technician	Speaker	Dourival Sabino Gomes Filho	Hospital Israelita Albert Einstein
			Choosing Your Resources	Speaker	Mariana Santos Alecrim Molina	Hospital Israelita Albert Einstein
15:30	17:00	01:30	RESEARCH TRACK [*Face-to-face*]	Moderator	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
			Simulation Research: from Construction to Publication	Speaker	Dario Cecilio-Fernandes	Universidade Estadual de Campinas
				Speaker	Maria Stella Peccin	Hospital Israelita Albert Einstein
				Speaker	Alessandra Mazzo	Universidade de São Paulo
			Promotion of Research for the Development of Technological Innovations for simulation	Speaker	Paulo Schor	Universidade Federal de São Paulo
			Simulation Fellowship	Speaker	Thomaz Bittencourt Couto	Hospital Israelita Albert Einstein
SYMPOSIUM | HYBRID Camilla Bueno Auditorium						
17:00	17:30	00:30	ABRASSIM and the Future of Simulation in Brazil	Speaker	José Roberto Generoso Júnior	ABRASSIM
17:30	18:00	00:30	Awarding of Prizes	Speaker	Joyce Kelly Silva Barreto	Hospital Israelita Albert Einstein
				Speaker	Thomaz Bittencourt Couto	Hospital Israelita Albert Einstein
18:00			Closing remarks	Speaker	Joyce Kelly Silva Barreto	Hospital Israelita Albert Einstein

CONTENTS

Presentation Abstracts

001

Experience report - training in safe patient mobilization and transfer

Rosana Gomes dos Santos[1], Fabiana Alves Da Conceição Melo[1], Natalia Martinez Vanni[1], Flávia Ferreira da Costa[1], Carolina Cristina Garcia[1], Gisele Novais Ribeiro[1]

[1] Hospital Samaritano Higienópolis, São Paulo, SP, Brazil.

Category: Experience Report

Fabiana Alves Da Conceicao Melo - https://orcid.org/0000-0002-8149-7973
Natalia Martinez Vanni - https://orcid.org/0009-0000-3371-1544
Flavia Ferreira da Costa - https://orcid.org/0000-0003-2735-352X
Carolina Cristina Garcia - https://orcid.org/0009-0002-7758-3913
Gisele Novais Ribeiro - https://orcid.org/0009-0007-9358-1877

Introduction: Patient mobilization can occur numerous times during hospitalization, whether it's to transfer them to an examination, procedure, change of bed/sector or even for discharge.(1) Employees of the Transport team and the Diagnostic Medicine sector constantly perform this procedure and need of best practices for applying the appropriate techniques and posture.

Objective: To report an experience of simulated patient mobilization and safe transfer, reinforcing best practices for the multidisciplinary team involved in patient mobilization and transfer.

Methods: This is an experience report study, with a descriptive and qualitative approach, carried out in February 2023 in general and private hospital in the state of São Paulo. The educational strategy applied was face- to-face with the creation of 3 scenarios, one of which was the pre-examination room, the hospitalization unit and the other scenario was the examination room with a table for the CT scanner and a table for performing echocardiograms and ultrasounds. The training began explaining the objective to the participants, after which a volunteer was asked to be the patient and another to mobilize the patient. Proper mobilization of the patient from wheelchair to stretcher, stretcher to stretcher and stretcher to wheelchair was discussed, as well as the proper use of the transfer (material designed to facilitate the transfer of the patient by sliding).

Results: Twenty-eight classes were held, with 153 professionals trained, including nursing staff, biomedical technicians and radiology technicians who work in the mobilization and transfer of patients in the diagnostic medicine sector and the transport nursing staff.

Final considerations: The transfer of patients requires a trained team to ensure safe mobilization for both the patient and the employee themselves, who need to know the proper techniques to move the patient according to their physical condition, as well as to preserve their health. In this context, teaching and learning through simulations makes it possible to reproduce reality interactively, in a controlled and supervised environment.(2)

Keywords: Simulation training; Patient transfer; Patient safety

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2. Kaneko RM, Lopes MH. Realistic health care simulation scenario: what is relevant for its design? Rev Esc Enferm USP. 2019;53:e03453.

SGPP number: Not applicable.

CAAE: Not applicable.

Research funding: No financial support.

Presentation Abstracts

CONTENTS

002

How to increase fidelity in extracorporeal cardiopulmonary resuscitation scenario? An experience report

Luciana Lopes Busquet Ferreira[1], Juliana Faria Campos[1], Gabriela Barcellos de Bakker[1], Paula Rodrigues dos Santos Pires[1], Sérgio Abreu de Jesus[1]

[1] Escola de Enfermagem Anna Nery, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil.

Category: Experience Report

Luciana Lopes Busquet Ferreira - https://orcid.org/0000-0001-5320-0370
Juliana Faria Campos - https://orcid.org/0000-0001-7254-5251
Gabriela Barcellos de Bakker - https://orcid.org/0000-0001-6779-3111
Paula Rodrigues dos Santos Pires - https://orcid.org/0000-0002-6128-310X
Sérgio Abreu de Jesus - https://orcid.org/0000-0002-7629-3730

Corresponding author
e-mail: luciana.busquet@gmail.com

Introduction: Extracorporeal cardiopulmonary resuscitation (E-CPR) is a complex process involving many professionals to perform advanced life support measures and cannulation to implement ECMO in patients with refractory cardiopulmonary arrest rapidly as it is a high-cost, highly complex, and low-recurrence therapeutic modality, a highly trained team is required.(1) Simulation-based training allows staff to develop and maintain technical proficiency in stressful and complex clinical scenarios.(2) However, its success is influenced by creating realism in its scenarios, promoting a safe and controlled learning environment.(3) Due to the number of professionals needed to guarantee realism for this scenario, we created audio to reproduce a PCR service. We played this audio during the training of nurses assembling the ECMO circuit in E-CPR.

Objective: Increase realism and insert stressful noises into a simulated ECMO circuit assembly scenario in the context of assembly and filling of the ECMO circuit in extracorporeal cardiopulmonary resuscitation.

Methods: In an advanced life support scenario, with noise inherent to CPR care, 3 ACLS course instructors conduct a care dialogue with a patient eligible for E-CPR. A previously prepared script encourages closed-loop communication and questions from the leader about activating the team to evaluate the patient, the cannulation process, and preparation of the ECMO equipment for rapid implementation of the technology and encourages the participant in the simulated scenario to give feedback on the steps that are being carried out during its performance. We recorded an audio of approximately 30 minutes, which was used to provide more realism and generate stressors during a scenario of assembling and filling an ECMO circuit for a master's research data collection with a number of research assistants limited. In a scenario characterized as an intensive care bed, the facilitator narrated the clinical case and, subsequently, invited the participant to begin caring for the patient. In this way, the scenario's stressors were turned on, and the audio played, giving more complexity to the scenario despite the reduced number of helpers within the simulated scenario. We applied this strategy during the post-test of a master's degree data collection approved by the ethics committee.

Conclusion: We concluded that using audio strategies in a complex scenario with fewer facilitators guarantees the necessary stressors to provide reliability to the simulated scenario that demands excellent complexity.

Keywords: Simulation training; Extracorporeal membrane oxygenation; Advanced cardiac life support

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3. Harder N. Dealing with the fidelity of simulation-based learning. Clin Simul Nurs. 2018;25:20-1.

SGPP number: Not applicable.

CAAE: 57829622.0000.5238.

Research funding: No financial support.

Presentation Abstracts

003

Preparation of a low-cost anatomical model for training and evaluation of pap smear

Camila de Araujo Alves Ferreira[1], Suelen Correia Manço[1]

[1] Realistic Simulation Center, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Development of New Products for use in Simulation

Camila de Araujo Alves Ferreira - https://orcid.org/0009-0000-8052-0302
Suelen Correia Manço - https://orcid.org/0000-0002-3422-8607

Corresponding author
e-mail: suelen.manco@einstein.br

Introduction: Cervical-vaginal cytology, commonly known as a Pap smear, is a diagnostic test used to detect cervical cell abnormalities that may indicate precancerous lesions. Cervical cancer ranks as the third most prevalent cancer among women, with the National Cancer Institute (*Instituto Nacional de Câncer*) projecting an estimated 17,010 new cases in 2023, equating to an adjusted incidence rate of 13.25 cases per 100,000 women.[1,2] Effective screening relies on the competence of healthcare professionals and the quality of the sample collected. While simulation training offers a secure environment to develop both technical and non-technical skills, the cost of simulators and skill training devices often hinders accessibility to such training.[3]

Objective: This article outlines the creation of an affordable and easily reproducible anatomical model designed for training and evaluating the practice of collecting cervical-vaginal cytology samples.

Methods: The model was crafted using a sponge measuring 23cm (L) x 12cm (W) x 6cm (H), a red balloon, 20g of modeling clay, galvanized clamps, and lubricating gel. To simulate the cervix, a balloon and modeling clay were used. The balloon was inverted to form the ostium of the uterus, and modeling clay was inserted, molded into a cylindrical shape, and secured with a knot. For the vaginal component, the sponge ends were joined and stapled, leaving one side smaller to represent the vaginal canal and the other larger to simulate the vagina. The cervix, with the ostium oriented toward the larger opening, was attached to the smaller side. The model was coated with lubricating gel to facilitate handling and create a mucosa-like texture.

Results: The anatomical model for collecting cervical-vaginal cytology allowed for the insertion of a speculum in oblique and horizontal positions. Once fully inserted, the cervix became visible. Simulated collection involved using a spatula to swipe the ectocervix and a brush to sample the endocervix, with the material applied to a slide and fixed with spray. The unit cost of the model was R$11.00, whereas commercial models ranged between R$5,000 and R$8,500. The model was replicated and employed for targeted training and assessment.

Conclusion: The model fulfilled its intended purpose, enabling training and evaluation of cervical-vaginal cytology sample collection, while remaining easily reproducible at a low cost.

Keywords: Simulation training; Vaginal smears; Primary prevention

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SGPP number: Not applicable.

CAAE: Not applicable.

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Presentation Abstracts

CONTENTS

004

Construction and validation of evaluative checklist of nursing students during simulated scenario on sepsis

Jane Walkiria da Silva Nogueira[1], Marcia Cristina da Silva Magro[1]

[1] Universidade de Brasília, Brasília, DF, Brazil.

Category: Primary and Secondary Studies

Jane Walkiria da Silva Nogueira - https://orcid.org/0000-0003-0192-2560
Marcia Cristina da Silva Magro - https://orcid.org/0000-0002-4566-3217

Corresponding author
e-mail: janewalkiria@gmail.com

Introduction: The high mortality resulting from sepsis in Brazil has been shown to be secondary to various factors.(1) Among them, the possible lack of preparedness of nursing professionals for the rapid and correct identification of sepsis cases and the consequent delay in starting treatment stand out. Therefore, it is essential to train future nurses through repetitive clinical simulations in controlled environments.

Objective: Build and validate a checklist to evaluate the practical performance of nursing students during a simulated medium complexity scenario on the early recognition of signs and symptoms of sepsis in the context of the emergency unit.

Methods: Methodological study developed in two phases**:** construction of the checklist consisting of items related to affective, cognitive and psychomotor skills and content validation by nine expert judges using the Delphi(2) technique. These evaluated each item of the instrument according to the criteria: clarity, scope, organization and relevance. The content of the checklist was based on the managed sepsis protocol – a screening form based on two criteria of Sirs (Systemic Inflammatory Response Syndrome) of the Instituto Latino Americano de Sepse(3) and the best levels of evidence proposed by the Surviving Sepsis Campaign (SSC) 2021(1) guidelines. For data analysis, a Content Validity Index (IVC) was calculated considering agreement equal to or greater than 80%. The minimum acceptable IVC value for *checklist* validation was 1.0. The study was submitted to and approved by the Research Ethics Committee of the *Universidade de Brasília,* Faculty of Health Sciences.

Results: The evaluative checklist proved to be appropriate with a level of agreement between the judges equal to or greater than 85% and an overall Content Validity Index equal to 1. It took two rounds between the experts. Some adjustments related to the clarity of the wording were necessary, as suggested by the judges**.** In the final version of the *checklist*, items related to affective competencies assess the student's ability to communicate effectively and demonstrate empathy when interacting with patients and their families. This involves explaining procedures in an understandable manner, presenting appropriately, and seeking support when needed. With regard to cognitive skills, the ability of the student to accurately recognize and interpret the patient's hemodynamic changes, identify signs and symptoms of sepsis and make appropriate decisions is investigated. This includes opening the sepsis protocol and calling in medical staff when necessary. In psychomotor skills, the evaluative items include technical skills and clinical procedures, ranging from hand hygiene, anamnesis and physical examination of the patient to the monitoring of hemodynamic parameters, collection of exams, administration of medications.

Conclusion: A checklist was successfully constructed and validated to assess the students' expected practical performance during the simulated medium complexity and high fidelity scenario on the early recognition of signs and symptoms of sepsis.

Keywords: Validation study; Sepsis; Simulation training; Education, nursing; Students, nursing

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SGPP number: Not applicable.

CAAE: 28233120.4.3002.8093.

Research funding: *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES) -Brazil, Funding Code 001.

Presentation Abstracts

CONTENTS

005

Pilot project: satisfaction and self-confidence of nursing students about the practice of telesimulation

Tássia Teles Santana de Macêdo[1], Flavia Carvalho Rocha[1], Marilaine Matos de Menezes Ferreira[1], Juliana Faria Campos[2], Verónica Coutinho[3], Bruna Gonçalves Ribeiro Araujo[2]

1 Escola Bahiana de Medicina e Saúde Pública, Salvador, BA, Brazil.

2 Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil.

3 Escola Superior de Enfermagem de Coimbra, Coimbra, CO, Portugal.

Category: Primary and Secondary Studies

Tássia Teles Santana de Macêdo - https://orcid.org/0000-0003-2423-9844
Flavia Carvalho Rocha - https://orcid.org/0000-0001-5977-2863
Marilaine Matos de Menezes Ferreira - https://orcid.org/0000-0002-0562-5523
Juliana Faria Campos - https://orcid.org/0000-0001-7254-5251
Verónica Coutinho - https://orcid.org/0000-0001-8073-4562
Bruna Gonçalves Ribeiro Araujo - https://orcid.org/0009-0001-1813-7166

Corresponding author
e-mail: jujufariacampos@yahoo.com.br

Introduction: The restrictions imposed by the social distancing resulting from the new Coronavirus pandemic have required several changes in the educational system.[1] Among them, it is possible to highlight the methodological transformation of teaching with the insertion of remote education and the use of digital platforms and technologies for pedagogical purposes, such as telesimulation.[2]

Objective: This study investigates nursing diagnostic accuracy, decision-making, metacognition, self-confidence, and satisfaction of nursing students in telesimulation.

Methods: The first phase of data collection, the pilot project, was carried out with 16 nursing students in 2022 at a higher education institution in Salvador-BA. After the asynchronous teleseminar scenario, the Student Satisfaction and Self-Confidence in Learning scale was applied and stored on the Red-Cap® platform. Descriptive statistics were used to analyze satisfaction and self-confidence in learning.

Results: In both semesters, most nursing students were satisfied (μ=4.65) and self-confident (μ=4.5) with the use of telesimulation.

Conclusion: Students strongly agreed that telesimulation effectively promotes satisfaction and self-confidence in learning. Implications for health and nursing: Telessimulation enables satisfaction and self-confidence in nursing.[3]

Keywords: Telesimulation; Nursing; Self concept

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SGPP number: Not applicable.

CAAE: 39240320.3.1001.5544.

Research funding: *Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro* (FAPERJ).

Presentation Abstracts

006

Cardiopulmonary arrest (CPA) training: a hybrid model with practical validation

Fabiana Alves Da Conceição Melo[1], Flávia Ferreira da Costa[1], Rosana Gomes dos Santos[1], Natalia Martinez Vanni[1], Carolina Cristina Garcia[1], Gisele Novais Ribeiro[1]

[1] Hospital Samaritano Higienópolis, São Paulo, SP, Brazil.

Category: Experience Report

Fabiana Alves Da Conceição Melo - https://orcid.org/0000-0002-8149-7973
Flávia Ferreira da Costa - https://orcid.org/0000-0003-2735-352X
Rosana Gomes dos Santos - https://orcid.org/0009-0002-4692-5597
Natalia Martinez Vanni - https://orcid.org/0009-0000-3371-1544
Carolina Cristina Garcia - https://orcid.org/0009-0002-7758-3913
Gisele Novais Ribeiro - https://orcid.org/0009-0007-9358-1877

Corresponding author
e-mail: fabiana.melo@uhgbrasil.com.br

Introduction: Care for patients in cardiac arrest is a critical and highly complex situation; recognizing clinical worsening and initiating high-quality cardiopulmonary resuscitation (CPR) is a determining factor in the patient's survival. The care provided by healthcare professionals in the event of CPR is carried out using basic CPR maneuvers, also known as Basic Life Support, aimed at maintaining or artificially recovering respiratory and circulatory function. One of the stages of CPR consists of performing external chest compressions, interspersed with artificial ventilations.[1,2] In this context, high-performance teams are essential for successful resuscitation attempts.

Objective: To report in a experiencea experience of hybrid training with individual practical validation in in-hospital Cardiopulmonary arrest care for the care team.

Methods: This is an experience report study, with a descriptive and qualitative approach, carried out between August and November 2022, in a private and general hospital in the state of São Paulo. Virtual training was provided on basic life support for adults, children, and pregnant women, with practical validation in simulation scenarios lasting 30 minutes. The target audience was the nursing teams (diagnostic medicine, material and sterilization center, transplant and infusion outpatient clinic, transport, inpatient and oncology units, blood bank, medical center, hemodialysis), nursing technicians (adult and child emergency room, pediatric, adult and neonatal intensive care unit, surgical center, hemodynamics), doctors (blood bank, hemodialysis, diagnostic medicine, transplant and infusion outpatient clinics) and other professionals (radiology technicians, biomedical technicians, physiotherapists, speech therapists and firefighters).

Results: A total of 98% of the public was trained, 99% were salaried professionals (914 trained), 98% were third-party care professionals (92 trained) and 92% were legal care professionals (189 trained). All were individually validated in patient assessment and activation of the internal emergency care service, performed chest compression cycles, bag-valve-mask ventilation and nurses and doctors were assessed on the proper use of the automatic defibrillator.

Final considerations: Cardiopulmonary arrest care must be fast, effective, and systematized, so it is important that the team is trained and validated with situations that are close to reality.

Keywords: Simulation training; Health human resource training; Patient safety

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CAAE: Not applicable.
Research funding: No financial support.

Presentation Abstracts

CONTENTS

007

International experience with hybrid simulation

Desirée Gonçalves[1], Juliana Wentzcovitch Rebouças[1], Mariana Rosati Borges[1], Paula Dias de Toledo Rodovalho[1], Priscilla Cerullo Hashimoto[1]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation in Healthcare

Desirée Gonçalves - https://orcid.org/0000-0003-2427-6071
Juliana Wentzcovitch Rebouças - https://orcid.org/0009-0008-9287-4843
Mariana Rosati Borges - https://orcid.org/0009-0008-1987-9824
Paula Dias de Toledo Rodovalho - https://orcid.org/0000-0003-1005-6107
Priscilla Cerullo Hashimoto - https://orcid.org/0000-0003-1699-8699

Corresponding author
e-mails: mariana.borges@einstein.br

Introduction: The Realistic Simulation Center and the Operational Excellence team at *Hospital Israelita Albert Einstein* developed training for postgraduate students in Colombia with simulation in a hybrid modality, to replicate the real-life experience through scenarios that favor a participatory and interactive environment, as a course completion module. The training took place with simultaneous translation, live transmission and aimed to share best practices in the flow of 3 patients with different characteristics and diagnoses, encompassing the pillars of communication and teamwork, and allowing discussion about the excellence of care, and that can be a lever for culture change.(1)

Objective: To train Operational Excellence postgraduate students – Colombia class - in practice, using hybrid simulation as a resource.

Methods: During the first round of the simulation, situations were presented, such as lack of priority in care, lack of organization, teamwork and communication, in a sequential manner starting with triage, office, medication room and, if necessary, emergency room. The students, divided into three groups, follow the flow of each patient from the entry to the exit in the Emergency Department. The students in Colombia, that followed via telesimulation, were able to see the care in a global way like observers, with all the cameras together. After the students got together and carried out the qualitative analysis followed by the Effort x Impact Matrix. The students who were observers had a round of questions and answers, which served as confirmation of the survey of causes prepared by the in-person students. The training ended with a second round of simulation, in the same situation, but with the application of improvements identified via the Effort x Impact Matrix, strengthening the importance of continuous improvement. The strategy used for this training was the hybrid model to reach both audience. So that the students could follow the simulation, an audio and video company was hired, as well as translators, for the experience to take place satisfactorily.

Results: With the improvement actions implemented, an improvement was observed in this student's experience throughout the training journey, with adaptation of the language for better understanding of the participants, use of technology to add to the students' knowledge and involvement of everyone during the phase analysis, in which an improvement in communication was observed due to being in different environments (online and in person).

Conclusion: We concluded that the training had an excellent performance in the formation and completion of the course, as it allowed the inclusion of all students, in addition to providing practical experience, regardless of where they were.

Keywords: Hybrid simulation; International; Colombia

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SGPP number: Not applicable.

CAAE: Not applicable.

Research funding: No financial support.

008

Rapid cycle deliberate practice in support of breastfeeding at the human milk bank: an experiential report

Leila Borges Manso[1], Flaviana Vely Mendonça Vieira[1], Ana Paula Assunção Moreira[1], Samara Caroline de Avelar[1]

[1] Universidade Federal de Goiás, Goiânia, GO, Brazil.

Category: Experiential Report

Leila Borges Manso - https://orcid.org/0009-0008-5212-3295
Flaviana Vely Mendonça Vieira - https://orcid.org/0000-0002-3085-9428
Ana Paula Assunção Moreira - https://orcid.org/0000-0001-8549-3788
Samara Caroline de Avelar - https://orcid.org/0009-0008-7951-1271

Corresponding author
e-mail: flavianavieira@ufg.br

Introduction: The Human Milk Bank (HMB) is a strategy for the promotion, protection, and support of breastfeeding (BF).[1] Rapid cycle deliberate practice (RCDP) contributes to preparing students to work in HMB.[2,3]

Objective: To report the experience of applying RCDP in teaching and learning for nursing undergraduates in supporting breastfeeding at HMB.

Methods: Experience report on the use of RCDP in three cycles (reception and guidance, breast physical examination, and massage and expression technique) and hybrid simulation (simulated participant with medium- fidelity breastfeeding simulator) in BF support at HMB. It was conducted in a simulated environment set up in the skills and simulation laboratory of the School of Nursing at the *Universidade Federal de Goiás* (FEN/UFG) during the Obstetric and Gynecological Nursing II course offered in the second semester of 2022. The population consisted of 52 nursing undergraduates divided into eight groups.

Results: The preparation of the undergraduates for simulation included theoretical classes and prior reading of breastfeeding-related material. On the day of RCDP, the participating group was divided into pairs. Pre-briefing (reception, fiction contract, and clarification about RCDP) and initial instruction were carried out: "You are nurses from HMB and will attend to a spontaneously demanding postpartum woman." The first pair initiated the scenario: received the postpartum woman (primiparous, six days post-cesarean delivery, complaint of red, painful, full breasts, difficulty breastfeeding, and offering formula to her daughter). Expected: reception, breast assessment, identification, guidance, and resolution of the problem (breast engorgement). The scenario was paused in situations to be improved, with targeted feedback, involving the undergraduates. Then, the second pair entered, and the scenario was run again (from the beginning). The same dynamic was followed until the learning objectives were achieved. At the end, a verbal assessment of RCDP was conducted, in which the majority reported better learning with this type of simulation, as it allowed the participation of all, immediate discussion, and improvement of the pairs' performance in the scenario.

Conclusion: Rapid cycle deliberate practice enabled undergraduates to develop competencies in a safe learning environment to be used in practical classes at HMB.

Keywords: Simulation training; Milk, human; Milk banks; Breast feeding

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009

Evidence of reliability and validity of the Brazilian Portuguese Version of the Jefferson Scale of Attitudes Toward Interprofessional Collaboration

Cláudia Camargo de Carvalho Vormittag[1], Thomaz Bittencourt Couto[2]

[1] Centro Universitário das Faculdades Associadas de Ensino, São João da Boa Vista, SP, Brazil.

[2] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Primary and Secondary Research

Cláudia Camargo de Carvalho Vormittag - https://orcid.org/0000-0002-6472-605X
Thomaz Bittencourt Couto - https://orcid.org/0000-0003-4744-981X

Corresponding author
e-mail: claudia.vormittag@prof.fae.br

Introduction: Interprofessional collaboration is essential for the improvement of healthcare systems.(1) Measuring attitudes related to interprofessional collaboration is not a simple task, and in Brazil, there are few instruments for this assessment. The Jefferson Scale of Attitudes Toward Interprofessional Collaboration is a tool used to assess attitudes towards collaborative interprofessional work among academics and practitioners.(2) This instrument has been translated and adapted to the Brazilian culture.(3)

Objective: To investigate the evidence of validity and reliability of the Brazilian Portuguese version of the Jefferson Scale of Attitudes Toward Interprofessional Collaboration among Brazilian healthcare students. To describe the scores of interprofessional collaboration attitudes among the students, comparing scores between different groups.

Methods: A cross-sectional observational study with students from a university in southeastern Brazil, using an online questionnaire.

Results: The study included 108 undergraduates from medicine, nursing, physiotherapy, dentistry, pharmacy, psychology and physical education courses. 44.4% (48) of the students were from the medical course and 31.5% (34) were from the second semester of graduation. The median age was 22 years (18 and 58 years), with a predominance of female students (75%). The scale showed good reliability (Cronbach's alpha = 0.779, 95%CI= 0.713-0.833) and no item was considered inconsistent to significantly improve the instrument. The subscales results were similar to those of the total scale (alpha of 0.783 for work relationship and 0.811 for accountability). The factor analysis confirmed the pre-established domains of the original instrument. The accountability scale scores, on average, were higher for medical students (mean difference of 5.6 points compared to students from other courses), younger (under 20 years old compared to those over 25) and with previous graduation. Among students over 25 years old, those with a previous degree had, on average, a higher accountability score.

Conclusion: The scale showed good evidence of validity and reliability to be applied to this study population. On the accountability subscale, medical students had higher mean scores when compared to students from other courses.

Keywords: Interprofessional education; Students, health occupations; Validation study

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Presentation Abstracts

CONTENTS

010

Use of the Escape Room in the teaching-learning process of upper gastrointestinal bleeding with video-guided debriefing

Gabriel Henriques Amorim[1,2], Renzo Lamego Nunes[1], Lia Borges Fiorin[1], Marcos Antonio Custódio Neto da Silva[2,3]

[1] Centro Universitário Multivix, Vitória, ES, Brazil.
[2] Centro de Ciências da Imperatriz, Universidade Federal do Maranhão, Imperatriz, MA, Brazil.
[3] Centro de Desenvolvimento de Educação Médica, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil.

Category: Experience Report

Gabriel Henriques Amorim - https://orcid.org/0009-0004-6744-6856
Renzo Lamego Nunes - https://orcid.org/0009-0008-4784-8638
Lia Borges Fiorin - https://orcid.org/0000-0002-0605-7513
Marcos Antonio Custódio Neto da Silva - https://orcid.org/0000-0003-2748-1564

Corresponding author
e-mail: ggabrielamorimh@gmail.com

Objective: To describe the experience of using the escape room and video analysis as a meaningful learning strategy for medical students and to assess the qualitative and quantitative feedback regarding the utilization of this integrated tool.

Methods: This is a description of the experience of using the escape room and video debriefing in an integration of active learning methodology with clinical simulation methodology.

Results: The experience took place on October 28, 2022, when thirty first semester medical students were invited to an evaluative extra class. This class followed the learning methodology of the Higher Education Institution, which is Team-Based Learning (TBL). Therefore, the students came prepared for the class. Consequently, with the same TBL teams, they engaged in the escape room scenario related to the initial management of a patient with Upper Gastrointestinal Bleeding. At the end of each team's session, video debriefing was conducted, which surprised HU the students and, according to them, reinforced the idea that they themselves were at the center of their learning. In the qualitative approach, the questions that had 100% of responses as "strongly agree" were: "it is a form of teamwork learning," "it was fun," "learning with this tool is useful for my education," and "the activity was a positive experience." Other questions received the following responses: "debriefing is important for identifying errors" with 94.7% "strongly agree" and 5.3% "agree," "video debriefing was helpful in pointing out items" with 63.2% "strongly agree," 31.6% "agree," and 5.3% "neutral," "I felt tachycardic during the activity" with 47.4% "disagree," 31.6% "agree," 10.5% "strongly disagree," 5.3% "strongly agree," and 5.3% "neutral," "the simulation environment was safe and non-threatening" with 78.9% "strongly agree," 15.8% "agree," and 5.3% "disagree".

Final Remarks: The decision to use simulation as an instructional method should consider fidelity (severity of events) and frequency (how often events occur) in training focus.[1,2] Simulations in healthcare are increasingly valuable for teaching not only technical skills and patient management but also essential competencies related to patient safety and teamwork, representing a growing and crucial aspect of simulation in medical education.[3,4] From the moment the simulation was conducted, it is evident that participants were engaged in the experience,[5] both in teamwork and in striving toward common goals among all students.[6,7] Furthermore, medical education needs to employ tools that foster resilience, such as video debriefing.[8] It can be concluded that from an educational perspective, student engagement, coupled with teamwork in resolving clinical simulations, is the hallmark of an innovative approach.

Keywords: Simulation; Escape room; Active methodologies, team-based learning; Video debriefing

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Presentation Abstracts

CONTENTS

011

Experience report: the use of simulation in the process of certification of medication administration for nursing professionals

Ana Carolina Invencione Porto[1], Mariana Santos Alecrim Molina[1], Marcella Zuliani Lopes Soares[1], Selma Tavares Valério[1], Jaqueline Aline de Oliveira[1], Kelly Souza Prado Fonseca[1]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Ana Carolina Invencione Porto - https://orcid.org/0009-0005-2456-6476
Mariana Santos Alecrim Molina - https://orcid.org/0000-0002-7839-1318
Marcella Zuliani Lopes Soares - https://orcid.org/0009-0003-7232-9024
Selma Tavares Valério - https://orcid.org/0000-0001-6624-7610
Jaqueline Aline de Oliveira - https://orcid.org/0000-0002-0268-7112
Kelly Souza Prado Fonseca - https://orcid.org/0009-0005-4377-8343

Corresponding author
e-mail: ana.porto@einstein.br

Introduction: Simulation is an important methodology for evaluating and training the multidisciplinary healthcare team. Between the most common adverse events, medication administration stands out as a critical issue for patients around the world, negatively impacting the healthcare system.[1-7]

Objective: To report the result of using the simulation assessment in a medication administration certification program for nursing professionals.

Methods: Certification in medication administration began in 2016 and currently covers seven assistance units that make up the *Hospital Israelita Albert Einstein.* The activity takes place in a structured room equipped with inputs and equipment that are equal to the reality of the employee, who is presented with a simulated clinic situation equivalent to the skills of each professional category, interacting with high-fidelity simulators and mannequins, lasting an average of one and a half hours. The nurse begins with identifying the patient, going through the entire medication administration process until documentation on the electronic medical record, while it is subjected to continuous evaluation by an assessor, who was trained in the methodology and theme of the scenario. Guided by an electronic checklist. At the end, the student receives general feedback from the assessor involving skills and knowledge expected for certification and learning.

Results: Since February 2023 to date, 628 nursing team employees from different sectors have been certified, with 457 approved in the first instance, 171 failed initially and passed in a new opportunity for recertification and 10 failed with the possibility of an educational action by direct leadership. Furthermore, adverse events related to medication reported at the institution decreased progressively since the beginning of the program.

Conclusion: The simulation-based assessment and training, in the process of medication administration certification maximizes essential competencies, promotes the continuous education of the professionals involved, disseminating among them a culture committed to quality and patient safety.

Keywords: Simulation training; Medication therapy management; Nursing evaluation research; Medication errors

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Presentation Abstracts

CONTENTS

012

The structured objective clinical examination as an assessment strategy in Physiotherapy Graduation: an experience report

Marcella Zuliani Lopes Soares[1], Priscilla Cerullo Hashimoto[1], Ana Carolina Invencione Porto[1], Karina Tavares Timenetsky[2], Fabricio Rapello Alves Araújo[2]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
[2] Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Marcella Zuliani Lopes Soares - https://orcid.org/0009-0003-7232-9024
Priscilla Cerullo Hashimoto - https://orcid.org/0000-0003-1699-8699
Ana Carolina Invencione Porto - https://orcid.org/0009-0005-2456-6476
Karina Tavares Timenetsky - https://orcid.org/0000-0002-4176-2445
Fabricio Rapello Alves Araújo - https://orcid.org/0000-0002-2740-2902

Corresponding author
e-mail: marcella.soares@einstein.br

Introduction: The Objective Structured Clinical Examination (OSCE) is considered an essential assessment tool in the teaching and learning process of higher education students. It was developed in 1975 by Harden, with the aim of evaluating the professional skills and knowledge of medical students, and is currently used in other health categories such as physiotherapy. It is a method that analyzes the student in a broad way, with their clinical skills, competencies and attitudes obtained during learning. Clinical stations are created, where the student must perform a specific task, in a pre-determined time and on a rotating basis, passing through simulated stations.[1-6]

Objective: To report the practice of OSCE as an assessment strategy for undergraduate Physiotherapy students.

Methods: The activity took place in May 2023, it is part of the teaching plan for the Physiotherapy I discipline of the 3rd semester of the Undergraduate Course in Physiotherapy at the *Faculdade Israelita de Ciências da Saúde Albert Einstein*. Based on the content covered in class, four assessment stations were created. The scenarios were set up in a diverse way, including interaction with simulated patients and teaching resources using a video of a clinical case, where after watching it the students answered an electronic questionnaire. The interactions were individually evaluated by teachers trained in the methodology and mastery of the topic, through direct observation and a specific checklist, with expected technical skills and behavioral skills. The students were previously divided into four groups, with entrances at different times, remaining confined in a room to guarantee the confidentiality of the instructions regarding the activity and content with the next group. After a draw carried out by the testing system, they went through each room in a precise time of 10 minutes, reading the case, carrying out the tasks and providing feedback with the evaluator. At the end, students completed a satisfaction assessment using an electronic checklist routinely collected during training.

Results: In total, 34 undergraduates participated, divided into four groups that passed through the four simulated seasons. The stations were replicated, resulting in a total of eight rooms, optimizing the rotation between students and meeting the workload of the curriculum. After the activity, students gave an average satisfaction rating of 9.8 and comments about the opportunity to practice in an environment close to reality, safe and subject to adjustments.

Conclusion: In this activity, the OSCE was used for the first time as an evaluation method in the Physiotherapy Degree, where through simulation, it was possible to safely expand the experiences lived in practice by the student, with the opportunity to reflect on their attitudes and decision-making. decision, transforming

the future of safer assistance, in addition to making you the protagonist of your learning process.

Keywords: Education; Educational measurement; Students; Physical therapy specialty; Simulation training

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Presentation Abstracts

CONTENTS

013

Development of a low-cost phantom for pericardiocentesis practice

Camila de Araujo Alves Ferreira[1], Midiã Martinez Matias[1], Mayara Martins Galetti[1], Alex Anastacio Aquino[1], Mariana Santos Alecrim Molina[1]

[1] Realistic Simulation Center, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Development of New Products for use in Simulation

Camila de Araujo Alves Ferreira - https://orcid.org/0009-0000-8052-0302
Midiã Martinez Matias - https://orcid.org/0009-0000-5898-7571
Mayara Martins Galetti - https://orcid.org/0000-0002-4137-2658
Alex Anastacio Aquino - https://orcid.org/0009-0007-5215-6305
Mariana Santos Alecrim Molina - https://orcid.org/0000-0002-7839-1318

Corresponding author
e-mail: camila.araujo@einstein.br

Introduction: Pericardiocentesis is a medical procedure used to drain fluid from the pericardial sac.(1) It can serve diagnostic or therapeutic purposes and is most effective and safe when performed with the guidance of ultrasound. Simulation training provides a valuable opportunity to develop and improve both technical and non-technical skills related to this procedure within a safe environment.(2) While phantoms are typically used as models for visualizing anatomical structures via ultrasound, they are often expensive.(3) This article aims to describe the development of a low-cost phantom for ultrasound-guided pericardiocentesis training.

Objective: To outline the creation of an affordable phantom using readily available materials for training in ultrasound-guided pericardiocentesis.

Methods: The construction of the phantom involved the following materials: 1.5 kilograms of gel wax, a size 7 balloon, a size 9 balloon, and a rib model from the Human Body Collection, fascicle 9. The gel wax was melted until it reached a liquid state, and one-third of the material was poured into a plastic container measuring 21.5cm (L) x 21.5cm (W) x 8.2cm (H), ensuring that the height did not exceed 3cm. The size 9 bladder was filled with 300ml of water and positioned on the left side beneath the semi-liquid wax, creating a concave shape to simulate the pericardium filled with fluid. The size 9 bladder was then removed, and a size 7 bladder, filled with 100ml of water and three drops of red food coloring, was placed in the cavity, simulating the ventricles. The remaining space was filled with water. The rib model was positioned beneath the wax, and the remaining liquid wax was poured to completely fill the container and cover the ribs. After the wax solidified and became gel-like, the phantom was removed from the mold and tested.

Results: The phantom allowed for the direct visualization of ribs and the sternum, facilitating the identification of anatomical landmarks and the correct puncture site. By positioning an ultrasound transducer, the cavity containing liquid and the bladder representing the ventricles were visible. Pericardiocentesis were performed using the Seldinger technique, enabling real-time ultrasound-guided needle insertion into the phantom and the drainage of simulated free fluid. In case of accidental puncture, the drained fluid exhibited a distinct color. Multiple punctures could be practiced, and the wax and rib model could be reused to create additional phantoms. The cost of this low-cost phantom was $30, while commercial pericardiocentesis phantom models range from $400 to $22,000.

Conclusion: This homemade phantom effectively served its intended purpose, providing a cost-effective solution for training in the ultrasound-guided pericardiocentesis technique.

Keywords: Simulation training, Pericardiocentesis; Health education; Ultrasonography

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Presentation Abstracts

CONTENTS

014

Exploring the use of escape room as a learning strategy in healthcare crisis resource management: an experience report

Priscilla Cerullo Hashimoto[1], Ana Claudia Arroyo Cruz[1], Midiã Martinez Matias[1]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Priscilla Cerullo Hashimoto - https://orcid.org/0000-0003-1699-8699
Ana Claudia Arroyo Cruz - https://orcid.org/0009-0000-2463-1702
Midiã Martinez Matias - https://orcid.org/0009-0000-5898-7571

Corresponding author
e-mail: ana.arroyo@einstein.br

Introduction: In addition to technical skills, non-technical skills are increasingly demanded within a hospital environment. Healthcare Crisis Resource Management (HCRM) aims to prepare teams to work in critical safety environments for effective performance, providing safer and more effective healthcare through the pillars of communication, teamwork, situational awareness, risk and error management, and decision-making, enabling interactions among individuals, equipment, and processes to ensure a high-reliability environment. In parallel, there is a growing number of healthcare professionals seeking different learning environments that not only enhance knowledge but also keep the student engaged. The use of the Escape Room methodology allows us to playfully discuss a systematic approach, diagnostic reasoning, and healthcare attention.[1-2]

Objective: To report the use of the Escape Room Methodology with Simulation in an HCRM training program.

Methods: Review of literature on the concept and its suitability in the context of HCRM. Students were invited to participate in a scenario that presents failures in pre-surgical patient identification security. To finish the escape room, participants had 30 minutes to solve 4 puzzles using the pillars of HCRM. After the escape room, a facilitator conducted a debriefing that allowed for reflection on the experience and drawing parallels to clinical practice.

Results: After the interaction, students viewed this approach as a collaborative and positive strategy, allowing for the integration of concepts. In total, 53 students divided into 5 groups participated in the escape room sessions. The overall training concept received an average rating of 9.7, affirming practical and interactive experience and greater confidence in independent thinking and decision-making.

Conclusion: It is evident that this approach enables active learning, high engagement in acquiring competencies, and brings benefits such as knowledge, student involvement, safety skills, and possibly improved clinical outcomes.

Keywords: Simulation training; Learning

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015

Milion show as a teaching-learning strategy in nursing technical education: experience report

Ariele Priebe Reisdorfer[1], Vanúzia Sari[1]

[1] Universidade Federal de Santa Maria, Santa Maria, RS, Brazil.

Category: Experience Report

Ariele Priebe Reisdorfer - https://orcid.org/0000-0002-0172-8197
Vanúzia Sari - https://orcid.org/0000-0003-0943-7009

Corresponding author
e-mail: arielereisdorfer@hotmail.com

Introduction: Different strategies anchored in active teaching-learning methodologies can be used in vocational technical education to provide effective learning,[1,2] among them, educational games.

Objective: To report the experience of development and application of the game "Million Show", in the discipline "Nursing in adult care in critical life situations", of the Technical Course in Nursing of the Polytechnic College of the *Universidade Federal de Santa Maria*.

Methods: In the first half of 2019, the teachers of the discipline developed a game based on the television program "Million Show" to discuss contents of the discipline, such as: sepsis, shock states, cardiorespiratory arrest, nursing assistance in endotracheal intubation and hemodynamic monitoring. Multiple choice questions were prepared with four answer options and only one correct, to be drawn and answered in ten rounds of the game. The rounds were represented by a game of hopscotch with colored A4 sheets that identified the value that, hypothetically, the group had won in the search for the "one million" (Figure 1). Each of the four groups formed by four students was represented by the anatomical model of an organ while traveling the path (heart, brain, lung and stomach). If they did not know the correct answer, they could choose one of the options: skip the question; ask for help from university students (three students in the same class); or ask for help from the playing cards, represented by the "king, numbers 1, 2 and 3". The number drawn in the cards eliminated the same amount of wrong answers. The king's card did not eliminate alternatives. The prize to the winning group was a briefcase containing a large ear of corn, symbolizing in a fun way the "one million".

Results: The duration of the game was approximately 90 minutes. The Million Show allowed students to experience again the atmosphere of attention and suspense of the game acclaimed by Brazilian spectators. The activity stimulated in the participants the collaborative work, the discussion for decision making and the sharing of knowledge and experiences. The students reported that the activity was innovative and relaxed, offering fluidity and protagonism to learning.

Conclusion: The Million Show is a low-cost teaching-learning strategy to be implemented in the nursing technical course. Given the high adherence of students to the game and the resulting learning, it has been replicated in this discipline throughout the semesters, in different classes.

Keywords: Education; Nursing; Learning; Teaching materials; Play and playthings

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SGPP number: Not applicable.

CAAE: Not applicable.

Research funding: No financial support.

Figure 1. Hopscotch game representing the route to "One Million"

016

Clinical diseases trail: experience report on the development and application of an educational game

Ariele Priebe Reisdorfer[1], Vanúzia Sari[1], Tânia Solange Bosi de Souza Magnago[1], Janete de Souza Urbanetto[1]

[1] Universidade Federal de Santa Maria, Santa Maria, RS, Brazil.
[2] Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, RS, Brazil.

Category: Experience Report

Ariele Priebe Reisdorfer - https://orcid.org/0000-0002-0172-8197
Vanúzia Sari - https://orcid.org/0000-0003-0943-7009
Tânia Solange Bosi de Souza Magnago - https://orcid.org/0000-0002-5308-1604
Janete de Souza Urbanetto - https://orcid.org/0000-0002-4697-1641

Corresponding author
e-mail: arielereisdorfer@hotmail.com

Introduction: The active teaching-learning methodologies provide a significant learning to students, considering them protagonists of this process.[1,2] One of the methodological strategies in this context includes the educational game.

Objective: To report the experience of development and application of a board game in the discipline of Clinical Adult, the Technical Course in Nursing of the Polytechnic College of the *Universidade Federal de Santa Maria*.

Methods: The board game was made in the second half of 2019, by teachers of the discipline, to review some contents, such as heart failure, infective endocarditis, liver cirrhosis and use of respiratory devices. The game was intulated "Clinical Diseases Trail"; the board was composed of colored leaves, size A3, to be arranged on the floor of the classroom. The game contained 50 squares and each was numbered and represented by a sheet (Figure 1). Some contained the guidelines: go back/advance one/two squares. Colored cones were used to identify the four groups formed, each of them with four to five students. There were 70 multiple choice questions with four answer options and only one correct one to be drawn and answered. If the groups got the questions right, they would go through the number of squares indicated by the previous release of a giant die. Otherwise, they remained in the same location. The prize for the winning group was a custom trophy.

Results: The game lasted approximately 90 minutes and involved 12 rounds. The Clinical Diseases Track has proven to be an effective teaching-learning strategy, stimulating knowledge sharing among students, discussion and teamwork. The students were participatory and reported that the activity, besides being enriching from an academic point of view, was pleasant and fun; favoring the learning of complex themes. Participants' commitment to the game and a healthy competitive environment were observed.

Conclusion: The board game can be considered a transformative method in the teaching-learning process of students of the technical course in nursing. Due to the success of the application of the game, its realization became annual, in this or other disciplines of the course, with adaptations proposed according to the contents covered.

Keywords: Education; Nursing; Learning; Teaching materials; Play and playthings

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CAAE: Not applicable.

Research funding: No financial support.

Figure 1. Board game "Clinical Disease Trail"

017

Simulation-based palliative care in undergraduate medicine

Carolina Felipe Soares Brandão[1], Maria Cecília Fernandes[1], José Roberto Generoso Junior[2], Gabriela Furst Vaccarezza[1]

[1] Universidade Municipal de São Caetano do Sul, São Caetano do Sul, SP, Brazil.

[2] Afya Educacional Tecnologia, Nova Lima, MG, Brazil.

Category: Primary and Secondary Research

Carolina Felipe Soares Brandão - https://orcid.org/0000-0002-7861-565X
Maria Cecília Fernandes - https://orcid.org/0000-0002-3487-4887
José Roberto Generoso Junior - https://orcid.org/0000-0002-0602-1481
Gabriela Furst Vaccarezza - https://orcid.org/0000-0002-2179-5338

Corresponding author
e-mail: carolinafs11@gmail.com

Introduction: Palliative care (PC) is a relatively recent medical specialty in Brazil. In 2022, there was a formal recommendation, in accordance with the National Curriculum Guidelines, for medical students to receive training on this topic.(1) However, there is a significant lack of literature guiding this moment and identifying the most effective educational strategies for optimizing knowledge retention. Therefore, this project aims to justify the investigation of simulation strategies and techniques applicable to this content. The use of simulation can enable educators to achieve uniform exposure in a controlled environment, allowing timely reflection to promote the development of these competencies.

Objective: Hence, the objective is to describe the integration of PC into the curriculum using a mixed clinical simulation. Additionally, the project aims to evaluate students' perceptions from an educational perspective and their self-perceptions regarding this topic.

Methods: This study employs an exploratory, longitudinal, and descriptive quantitative approach. It has received approval from the Research Ethics Committee under protocol number 6.073.008. The research is currently in progress, initiated in June 2023, and is anticipated to be conclude in December 2024. It involves mixed clinical simulation followed by PEARLS debriefing with 6th-year medical students, organized into small groups. The clinical scenario focuses on a young drug addict (high-fidelity simulator) found unresponsive at home by his father (actor) and subsequently transported to the emergency department in his private vehicle. A standardized questionnaire has been administered by Google Forms to comprehend the impact of the activity.

Results: Up to the present moment, there have been 33 participants (55% of a class of 60 students). All stages of the study will be documented and described in the final report. Initially, data will be organized in Excel and subsequently aligned in IBM-SPSS Statistics version 28 for exploratory data analysis. Descriptive statistical analyses, including mean, median, standard deviation, minimum, and maximum values, will be conducted for numerical variables. Categorical variables will be analyzed using numbers and proportions as established in the literature. Based on these partial data, the following observations were made: 75% of the students are between 24 and 25 years old; 57% responded that they do not feel competent to discuss PC with a patient or family member without supervision; 76% stated they do not possess adequate skills to address do-not-resuscitate orders or treatment limitations; 64% reported feeling uncomfortable communicating bad news without some form of supervision. From an educational standpoint, 97% considered the activity extremely relevant; 100% of the students accepted mixed simulation, with 57.6% finding the presence of the actor more impactful compared to the simulator. All students regarded behavioral and PC simulations as mandatory, and 57% wished they had been exposed to more simulated activities. Moreover, 72% expressed

willingness to participate in future simulation activities, although 81.8% expressed concerns about their emotional reactions when faced with a dying patient.

Conclusion: These partial data reinforce the need to continue this research and expand clinical scenarios using diverse techniques throughout the medical curriculum concerning palliative care.

Keywords: Education, Medical, Graduate; Patient simulation; Palliative care

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Research funding: No financial support.

Presentation Abstracts

018

Deliberate practice in rapid cycles for teaching and learning normal childbirth care

Ana Paula Assunção Moreira[1], Flaviana Vely Mendonça Vieira[1], Leila Borges Manso[1], Samara Caroline Avelar[1]

[1] Universidade Federal de Goiás, Goiânia, GO, Brazil.

Category: Experience Report

Ana Paula Assunção Moreira - https://orcid.org/0000-0001-8549-3788
Flaviana Vely Mendonça Vieira - https://orcid.org/0000-0002-3085-9428
Leila Borges Manso - https://orcid.org/0009-0008-5212-3295
Samara Caroline Avelar - https://orcid.org/0009-0008-7951-1271

Corresponding author
e-mail: anapaulamoreira13@hotmail.com

Introduction: Deliberate Practice in Rapid Cycles (DPRC)[1] is a type of clinical simulation (CS) in which participants alternate between performing the simulated scenario and engaging in facilitator-directed debriefing until they achieve mastery of the activity. It is increasingly used for healthcare education.[2,3]

Objective: To present the application of DPRC in normal childbirth care for undergraduate nursing education.

Methods: Experience Report on the Application of DPRC in Teaching and Learning Normal Childbirth Care for Undergraduate Nursing at the *Universidade Federal de Goiás*. The scenario construction followed the recommendations of best practices in simulation proposed by the International Nursing Association for Clinical Simulation and Learning.[4] The same scenario had been used by facilitators in previous years in a hybrid simulation format. We chose to adapt the scenario to DPRC because it is a strategy that enhances and maximizes learning without creating psychological overload for the students.[2,3] Thus, the created scenario aimed to enable students to provide good practices in assisting clinical stages of childbirth. The scenario was divided into four stages, corresponding to the clinical stages of childbirth: dilation/effacement, expulsion, dequitation, and Greenberg.[5] At the end of each stage, a directed debriefing took place, with a specific focus on the period being addressed.

Results: The simulation with DPRC was evaluated by students as an excellent active methodology strategy for teaching and learning normal childbirth care, primarily for enabling the participation of everyone through the rotation of participants in each scenario. Furthermore, they noted that the cycles provided opportunities for event correction or improvement and the reinforcement of the covered content. They highlighted the significance of conducting directed debriefings after each scenario, allowing for a detailed analysis of the situations based on scientific evidence. For the facilitators, the application of DPRC requires more involvement due to the need for scenario repetition, making it more tiring compared to conventional simulation.

Considerations: Deliberate Practice in Rapid Cycles has proven to be a valuable curricular active methodology due to the opportunity for the participation of all, increased exchange of experiences, and better utilization of debriefing.

Keywords: Simulation training; Education, nursing; Natural childbirth

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SGPP number: Not applicable.

CAAE: Not applicable.

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019

Interprofessional simulation practice among nursing and physiotherapy undergraduates: an experience report

Marcella Zuliani Lopes Soares[1], Priscilla Cerullo Hashimoto[1], Paula Dias de Toledo Rodovalho Menezes[1], Filipe Utuari de Andrade Coelho[2], Guilherme Barbosa Schimocomaqui[2]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
[2] Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Marcella Zuliani Lopes Soares - https://orcid.org/0009-0003-7232-9024
Priscilla Cerullo Hashimoto - https://orcid.org/0000-0003-1699-8699
Paula Dias de Toledo Rodovalho Menezes - https://orcid.org/0000-0003-1005-6107
Filipe Utuari de Andrade Coelho - https://orcid.org/0000-0003-4787-1420
Guilherme Barbosa Schimocomaqui - https://orcid.org/0000-0002-0545-5384

Corresponding author
e-mail: marcella.soares@einstein.br

Introduction: Interprofessional education enhanced by simulation fosters the development of complementary knowledge and skills, in a controlled environment where students learn from one another. In involves fundamental values and concepts such as the importance of creating multi-professional relationships, effective collaboration, with focus in quality, safety and patient-centered care. The integration of interprofessional practices into the educational curriculum enables reflection on teamwork and the transformation of the student training process, involving knowledge, skills and attitudes essential for effective interprofessional collaboration and competent future professionals.[1-5]

Objective: To report Interprofessional practice using Simulation to students of the Nursing and Physiotherapy course.

Methods: This activity took place in September 2022, lasting 4 hours. It was incorporated in the Teaching Plan for the 1st semester of the Nursing Degree and 2nd semester of the Physiotherapy course at the "*Faculdade Israelita de Ciências da Saúde Albert Einstein*". Simulated stations based on active methodologies were created: 2 rooms for practicing cardiopulmonary resuscitation skills on adult and pediatric torsos and use of the automatic external defibrillator and 2 rooms with an adult and pediatric Rapid Cycle Deliberate Practice strategy, where clinical cases were reiterated until competence was achieved, with complexity increasing progressively to suit the group's skill level. The dynamics involved the participation of ten instructors who were trained in the methodology and theme. The students were divided into four groups and received guidance on Basic Life Support, before the before commencing the activity. Subsequently, they rotated through the four simulated stations, spending a designated 40 minutes per station. Following the activity, students completed an electronic checklist collected routinely during training with the course satisfaction assessment.

Results: A total of 82 students participated in the activity, 33 from Physiotherapy and 49 from Nursing, divided into four. After the practices, students gave an average satisfaction rating of 9.9 and offered comments praising the opportunity to interact in an interdisciplinary way and experience together the clinical situations presented, reinforcing concepts and generating greater confidence in decision-making.

Conclusion: This was the first activity using Simulation in an Interprofessional Practice between the Undergraduate Nursing and Physiotherapy courses, as a strategy to improve students' learning and experience. This approach promoted active learning, high engagement in acquiring skills, reinforcing the fundamental role of each professional in improving care, allowing for an innovative learning experience and knowledge acquisition.

Keywords: Simulation training; Interdisciplinary communication; Learning; Interprofessional education; Students

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CAAE: Not applicable.

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020

Virtual simulation for learning standardized nursing terminologies NANDA-NOC- NIC

Silvio Cesar da Conceição[1], Camilli de Souza Santos[1], Gleice Paiva Lustosa Rodrigues[1], João Pedro da Conceição Mendonça[1], Karina De Alcantara Siqueira[1], Lara Evelyn Rosa Rodrigues[1], Leonardo Mendes Barbosa[1], Maria Jose Coelho Clemente[1]

[1] Universidade Santa Úrsula, Rio de Janeiro, RJ, Brazil.

Category: Experience Report

Silvio Cesar da Conceição - https://orcid.org/0000-0003-4745-3333
Camilli de Souza Santos - https://orcid.org/0000-0003-2296-6319
Gleice Paiva Lustosa Rodrigues - https://orcid.org/0009-0008-7643-8339
João Pedro da Conceição Mendonça - https://orcid.org/0000-0001-6506-1400
Karina De Alcantara Siqueira - https://orcid.org/0009-0003-3147-2799
Lara Evelyn Rosa Rodrigues - https://orcid.org/0009-0000-7686-7186
Leonardo Mendes Barbosa - https://orcid.org/0009-0003-4021-9058
Maria Jose Coelho Clemente - https://orcid.org/0009-0006-2748-3956

Corresponding author
e-mail: silvioenfermeiro73@gmail.com

Introduction: Standardized nursing terminologies ensure coherence and continuity of care, generation of clinical-assistive indicators, and measurement of the effectiveness of nursing care.(1) Teaching and learning strategies based on simulation emerge as a proposal to optimize the understanding of the significance of these terminologies. The NANDA-NOC-NIC standardized terminologies refer to a comprehensive system used in nursing to standardize the language and classification of patient outcomes, interventions, and nursing diagnoses. "Web- based simulation" typically involves interactive online scenarios to enhance learning experiences. The use of virtual simulation can contribute to the learning process of nursing students by creating an environment in which learners can interact with virtual patients. In this virtual context, students can carry out anamnesis and physical examination of patients, providing experiences closer to the real world. (2)

Objective: The aim of the present study was to delineate nursing students' perceptions regarding the learning strategy of NANDA-NOC-NIC standardized terminologies using a web-based simulation approach.(3)

Methods: Experience report of a group of seven undergraduate students on learning strategies during the second semester of 2022, which followed the following steps: 1) presentation of the standardized NANDA-NOC-NIC terminologies; 2) data collection from a simulated patient using a commercial virtual platform (web-based simulation); 3) execution of the nursing process for the simulated patient, utilizing standardized terminologies; 4) meeting with the instructor to allow students to present their perceptions of the employed strategies; and 5) formulation of the experience report.

Results: The professor selected a case on the virtual simulation platform involving a patient diagnosed with depression and in weekly classes for 1 month the students were taken to the computer laboratory and had the opportunity to carry out the nursing process. An instrument developed by the professor using Excel software was used by the students to record the stages of the nursing process. Data collection was based on Wanda Horta's Theory of Human Needs and the NANDA-I taxonomy was used for nursing diagnoses. The nursing results and the final assessment were based on the Nursing Outcomes Classification (NOC) and for nursing interventions the Nursing Interventions Classification (NIC) was used. Students expressed satisfaction with the platform's use but recommended an extension of training time on the platform and the inclusion of a greater number of virtual patients. Student outcomes included an enhanced understanding of the importance of utilizing standardized terminologies and contentment with academic performance.

Conclusion: The teaching-learning strategy was adjusted to incorporate student suggestions. Future

involves conducting a quasi- experimental study using the developed teaching-learning strategy.

Keywords: Patient simulation; Nursing process; Taxonomy

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CAAE: Not applicable.

Research funding: No financial support.

Presentation Abstracts

Award 1st place

021

Evaluation of performance in pediatric cardiopulmonary reanimation after clinical simulation: a quase-experimental study

Cláudia Maria Baroni Fernandes[1], Eduardo Maranhão Gubert[1], Izabel Meister Coelho[1], Rafaella Fadel Friedlaender[1], Rosiane Guetter Mello[1]

[1] Faculdades Pequeno Príncipe, Curitiba, PR, Brazil.

Category: Simulation Training

Cláudia Maria Baroni Fernandes - https://orcid.org/0009-0007-9271-1289
Eduardo Maranhão Gubert - https://orcid.org/0000-0001-9370-8400
Izabel Meister Coelho - https://orcid.org/0000-0002-4904-0746
Rafaella Fadel Friedlaender - https://orcid.org/0009-0007-5238-0067
Rosiane Guetter Mello - https://orcid.org/0000-0002-0612-3955

Corresponding author
e-mail: claudiambfernandes@gmail.com

Objective: To evaluate the performance in pediatric cardiopulmonary resuscitation of medical and nursing residents after training with clinical simulation scenarios of interprofessional care.

Methods: Quantitative research with an exploratory, descriptive approach, of the quasi-experimental type that evaluates educational intervention. Subjects were divided into 16 groups of 5 to 7 professionals with simulation and debriefing: Moment 0 (M0): simulation at the beginning of the meeting; Moment 1 (M1): after M0 debriefing; Moment 2 (M2): approximately three months after M0. The research instrument was a pediatric cardiorespiratory arrest (CRA) checklist after a panel of experts. Approval from the Ethics Committee under Consubstantiated Opinion No. 5,131,695. Data was analyzed by statistics and Student *t* tests were applied.

Results: Invitation for 96 participants, resulting in 85 residents in M0 and M1; 58 residents in M2. In M0, one group performed the immediate start of CPR correctly, while in M1, 50% of the groups did, and in M2, 75%. There was a significant difference in M0 and M1, reinforcing the impact on immediate learning. In recent research,[1] it is emphasized that immediate CPR is crucial for survival on victims of cardiac arrest. In M0, 68.8% of the groups were wrong about the compression depth; in M1, 18.8%, and in M2, 75%. There was a significant difference in M0 and M1, and in M1 and M2. It has relation with the technical competence improved with practice and, over time, manual skills are likely to be lost. In M0, 75% were incorrect regarding the return of the chest; in M1, 25% and in M2, also 25%. There was a statistical difference, indicating immediate learning and retention. Regarding the 15:2 ratio in compressions and ventilations, 37.5% of the groups made mistakes in M0, all scored in M1 (with statistically significant difference) and, in M2, one group made mistakes. As for compression frequency, in M0 15 groups did not score, M1 with 50% of mistakes (significant difference) and M2 66.7%. In the research[2] that evaluated chest compressions in CRP in terms of frequency and depth in-hospital, low quality results in 96% were obtained. 56.2% missed the rhythm check in M0, 18.8% in M1 and 0% in M2. In a Brazilian survey,[3] using the *in situ* mock code, it was observed that only 33.3% of professionals checked the heart rate timely. As for the antiarrhythmic drug, 50% were wrong in M0, 18.8% in M1 and 16.7% in M2. Alarming data regarding the safe performance of defibrillation: there was no adequate administration in the first shock in 43.8% of the groups in M0, 18.8% in moment 1 and 8.3% in moment 2. Regarding the second and subsequent shocks: 68.8% of the groups were unsuccessful in M0, 56.2% in M1 and 66.7% in M2. For the second IV access: in both M0 and M1, 100% of the classes did not verbalize it, and in M2, 91.7% failed to request it.

Conclusion: Simulations are recommended to gain skills and exercise clinical practice in shorter intervals than the average of 129 days seen in the study. A continuing education program with clinical simulations that bring professionals together frequently is recommended, and the need for new studies on the topic is also reinforced to expand knowledge and improve teaching in the area.

Keywords: Simulation training; Interprofessional education; Cardiopulmonary resuscitation; Quality assurance, health care

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CAAE: Not applicable.

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022

Analysis of acquisition and retention of cardiopulmonary resuscitation skills according to training frequency

Joyce Kelly Barreto Silva[1], Thomaz Bittencourt Couto[1], Andreia Melo Coriolano[2], Alex Anastacio Aquino[1], Júlio Cesar Martins Monte[3]

1 Realistic Simulation Center, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.
2 Medical Education Development Center, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil.
3 Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Joyce Kelly Barreto Silva - https://orcid.org/0000-0002-4230-9124
Thomaz Bittencourt Couto - https://orcid.org/0000-0003-4744-981X
Andreia Melo Coriolano - https://orcid.org/0000-0002-6924-9897
Alex Anastacio Aquino - https://orcid.org/0009-0007-5215-6305
Júlio Cesar Martins Monte - https://orcid.org/0000-0002-3315-5928

Corresponding author
e-mail: joyce.barreto@einstein.br

Introduction: Studies estimate that the incidence of cardiac arrest ranges from 20 to 140 per 100,000 individuals. In addition, these studies also report that survival rate remains low, both intra- and extra-hospital.(1) The quality of cardiopulmonary resuscitation performed during the event is one of the factors that influence directly the survival rate, and although evidences that guidelines of American Heart Association and European Resuscitation Council influence positively this indicator, difficulties are still being observed in providing cardiopulmonary resuscitation of quality by health professionals.(2)

Objectives: To analyze the acquisition and retention of cardiopulmonary resuscitation skills at different time intervals - 3 and 6 months, to determine the best training frequency for the population in the study.

Methods: The subjects were medical school undergraduates from the 5th and 6th year, who carried out cardiopulmonary resuscitation practices using the simulator with feedback device.

Results: The study included 62 students from the 5th and 6th year of medical school. Upon comparing the performance with and without feedback at baseline, most of the items showed differences: overall performance ($p<0.001$), depth ($p<0.001$) and frequency of compressions ($p=0.002$) and we observed greater proportion of students in the advanced level and excellent performance in the training with feedback ($p<0.001$) (Figure 1). In the performance analysis over time, we observed evidence of 12% increase in overall performance over the baseline at 3 months ($p=0.001$) and 10.1% at 6 months ($p<0.001$), increase in depth of 38.9% at 3 months ($p<0.001$) and 24.7% at 6 months ($p=0.010$), and frequency of compressions presented significant increase only at 6 months, reaching 8.6% ($p=0.026$) (Table 1). Upon comparing the performance among the groups, we did not observe significant difference between the groups who performed the training every 3 months and the group who had it after 6 months ($p>0.05$). Table 2 describes the costs related to traditional training versus using simulation with feedback and it is noted that from the second year onwards the cost of training using this technology is lower than the traditional one.

Conclusion: There was significant improvement in acquisition and retention of cardiopulmonary resuscitation skills with short-term training with the simulator with feedback device, but there was no difference between training intervals of 3 or 6 months.

Keywords: Cardiopulmonary resuscitation; Simulated training; Skills

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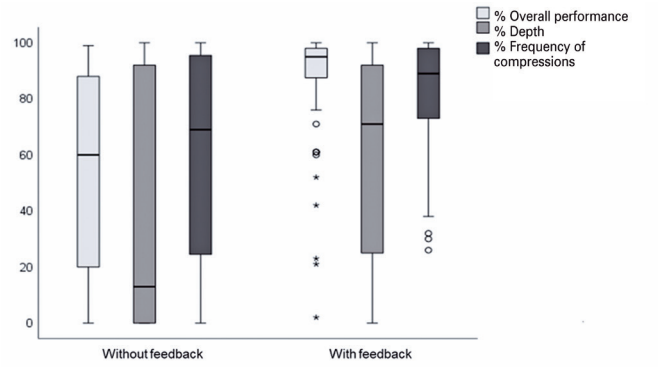

Figure 1. Performance with x without feedback

Table 1. Comparison of performance at 6 months per groups (n=43)

	Group 3m (n=23)		Group 6m (n=20)		p value
	n	%	n	%	
Overall Performance (%)					0.810*
Mean and Standard deviation	95.26	6.20	94.75	8.48	
Minimum and Maximum	75.0	99.0	61.0	99.0	
Median and Quartiles	98.0	96 - 99	98.0	94 - 99	
Classification of Overall Performance in 3 levels					0.465†
Basic Level: between 0 - 49%	0	0.0%	0	0.0%	
Intermediate Level: 50 - 74%	0	0.0%	1	5.0%	
Advanced Level: 75 - 100%	23	100.0%	19	95.0%	
Depth (%)					>0.999*
Mean and Standard deviation	75.96	25.96	74.05	25.75	
Minimum and Maximum	12.0	100.0	14.0	100.0	
Median and Quartiles	77.0	65 - 99	77.5	59 - 98	
Total recoil (%)					0.634*
Mean and Standard deviation	89.26	10.16	89.00	13.20	
Minimum and Maximum	67.0	100.0	50.0	100.0	
Median and Quartiles	93.0	82 - 98	93.5	81 – 99.5	
Frequency of compressions (%)					0.272*
Mean and Standard deviation	88.78	14.61	88.90	8.94	
Minimum and Maximum	51.0	100.0	66.0	100.0	
Median and Quartiles	95.0	87 - 99	92.0	83.5 – 94.5	
Correct hand position (%)					0.324*
Mean and Standard deviation	99.48	1.59	99.05	1.99	
Minimum and Maximum	93.0	100.0	93.0	100.0	
Median and Quartiles	100.0	100 - 100	100.0	99.5 - 100	
How many times you showed your skills?					-
1.00	23	100.0%	20	100.0%	
Did you reach excellent (equal or greater than 90%)?					0,669†
No	4	17.4%	2	10.0%	
Yes	19	82.6%	18	90.0%	
In each attempt?					-
1.00	19	100.0%	18	100.0%	
Did you experience tiredness that prevented you from continuing?					0.669†
No	19	82.6%	18	90.0%	
Yes	4	17.4%	2	10.0%	
Outcome of the attempt:					0.669†
Participant reached score >90% and closed the demo	19	82.6%	18	90.0%	
Participant reached less than 90% and will try once again	0	0.0%	0	0.0%	
Participant is too tired to go on	4	17.4%	2	10.0%	

† Fisher Exact Test; * Mann-Whitney Test.

Table 2. Annual cost analysis of training with traditional model *versus* simulator with feedback model

	Traditional	Simulator with feedback device	
	Per year	1st year	As of 2nd year
Venue cost/ resources	$ 10.706	$ -	$ -
Facilitator cost	$ 9.935	$ -	$ -
Simulator cost	$ -	$ 4.965	$ -
Technician cost	$ -	$ 10.638	$ 10.638
Total 1st year	$ 20.642	$ 15.603	$ 10.638

* Data simulated according to the costs of the organization where the study was conducted, based on the year of 2021. Prices in Brazilian Reals.

023

Comparison between participants and observers about skills and self-efficacy after simulation

Elaine Maria Bueno de Moraes[1], Danielle Rachel dos Santos Carvalho[2], Tatiana Mirabetti Ozahata[1], Juliany Lino Gomes Silva[3], Rafaela Batista dos Santos Pedrosa[3] Dario Cecilio-Fernandes[1], Thiago Martins Santo[1]

[1] Faculdade de Ciências Médicas, Universidade Estadual de Campinas, Campinas, Brazil.
[2] Universidade Anhembi Morumbi, São José dos Campos, SP, Brazil.
[3] Faculdade de Enfermagem, Universidade Estadual de Campinas, Campinas, Brazil.

Category: Primary Study

Elaine Maria Bueno de Moraes - https://orcid.org/0000-0003-2801-8926
Danielle Rachel dos Santos Carvalho - https://orcid.org/0000-0002-6817-845X
Tatiana Mirabetti Ozahata - https://orcid.org/0009-0000-1501-2328
Juliany Lino Gomes Silva - https://orcid.org/0000-0002-2930-103X
Rafaela Batista dos Santos Pedrosa - https://orcid.org/0000-0003-2918-9778
Dario Cecilio-Fernandes - https://orcid.org/0000-0002-8746-1680
Thiago Martins Santo - https://orcid.org/0000-0002-4686-3122

Corresponding author
email: e231394@dac.unicamp.br

Introduction: Clinical simulation as a teaching methodology is an efficient tool for skills development. Simulation-based learning allows the unlimited repetition of unusual or rare real-life procedures and situations, covering experiences from the simplest to the most complex.[1-4] During a simulation scenario, there are two types of students: active participants, who make decisions and provide direct assistance during the scenario, and observers who watch the unfolding of the scene, without interfering with it.[5] Furthermore, simulation-based learning improves knowledge, self-efficacy and skills training. However, the impact of the role of students in such aspects is not yet elucidated.[6,7]

Objective: This study goal to compare the development of knowledge, skills and self-efficacy between active participants and observers in a simulated scenario.

Methods: In this pre- and post-test study, Learners (medical and nursing students or residents) were invited to participate in a simulated palliative extubation. On the first day (D1) students watched a theoretical video lesson and completed a pre-test and self-efficacy scale. Then they were divided into observers and participants. After performing the scenario, both groups underwent a debriefing, and completed a post-test and self-efficacy scale. After fourteen days (D2) the groups performed the same scenario separately, without observers, and answered the post-test and the self-efficacy scale. Ability assessment was measured by a checklist in both groups at D2.

Results: Forty-four learners were equally divided into two groups. There was a significant improvement in knowledge between the pre- and post-test for both groups ($F(2.126) = 8.109$; $p<0.05$, partial $\eta 2 = 0.114$). In D2, there was a significant drop in knowledge only for participants. We also found a gradual increase in self-efficacy in the three moments, with significance from the pre-test to the post-test ($F(2.126)=15.33$, $p<0.001$) and difference between groups ($F(1.126)=6.55$; $p<0.05$), with higher values in the group of participants. However, there was no difference between time and group interaction ($F(2.126) = 0.60$; $p>0.05$).

Conclusion: Observers and participants seem to perform similarly in knowledge retention, perceived self-efficacy, and learning skills in a simulated scenario. Observation can be a suitable participation option to fulfill simulation-based learning objectives.

Keywords: Clinical simulation; Palliative extubation; Knowledge; Aptitude; Self efficacy

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SGPP number: Not applicable.

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Presentation Abstracts

Award 3rd place

024

Appropriate delivery: impact of simulation training on the increase in vaginal births in hospitals in Brazil

Mariana Santos Alecrim Molina[1], Eduardo Cordioli[1], Thomaz Bittencourt Couto[1], Joyce Kelly Barreto[1], Rita de Cássia Sanchez[1]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Mariana Santos Alecrim Molina - https://orcid.org/0000-0002-7839-1318
Eduardo Cordioli - https://orcid.org/0000-0001-5405-9380
Thomaz Bittencourt Couto - https://orcid.org/0000-0003-4744-981X
Joyce Kelly Barreto - https://orcid.org/0000-0002-4230-9124
Rita de Cássia Sanchez - https://orcid.org/0009-0001-0317-700X

Corresponding author
e-mail: mariana.alecrim@einstein.br

Introduction: Cesarean deliveries have increased significantly in most countries over the last three decades, with Brazil currently having the highest percentage of cesarean sections in the world. The Brazilian average, including the private and public sector, is 57% of cesarean deliveries, compared to the World Health Organization recommendation of an average of 15% for cesarean deliveries based on scientific evidence.[1] Considering this scenario, three entities, created a collaborative effort to improve the quality of obstetric care, the Appropriate Delivery Project (PPA). The project encompasses a series of measures, including training using high-fidelity simulation, with a specific objective: to resolve complications during labor, delivery and postpartum, for general physicians and nurses and obstetricians, so that they regained confidence in their technical capacity and teamwork.[2]

Objective: The purpose of this study is to analyze the relationship between the participation of professionals from participating hospitals in simulation-based training and the increase in vaginal deliveries.

Methods: Data from 27 hospitals that participated in the project (339 professionals trained in total) and rates of vaginal births thirteen months before and after the start of the pilot phase were analyzed. To assess the training effectiveness, we correlated the data found with Kirkpatrick's[3] assessment model and the results show a change from level 4 – "Result", that is, the presence of professionals, mainly physicians, in the simulation was related to the desired clinical outcome: the increase in vaginal deliveries.

Results: There was a correlation between the number of trained professionals and better clinical outcomes in hospitals, showing a great potential benefit of training with simulation.

Conclusion: The inclusion of simulation-based training in the preparation of health professionals working in obstetrics has been associated with an increase in vaginal deliveries in Brazilian hospitals.

Keywords: Simulation training; Delivery, obstetric; Cesarean section

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SGPP number: 3877-19.

CAAE: 24233019.0.0000.0071.

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Presentation Abstracts

CONTENTS

025

Using *in situ* simulation as a methodology to train a multidisciplinary team in a neonatal triage unit of a university hospital for AED handling

Cássia Janne Nonato da Costa[1], Emílio Carlos Alves do Santos[1], Everllyn Suárez da Silva Oliveira[2], Hannah Krysttel de Lima Barrozo[2]

[1] Hospital Universitário Júlio Müller, Cuiabá, MT, Brazil.
[2] Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil.

Category: Experience Report

Cássia Janne Nonato da Costa - https://orcid.org/0000-0001-9507-0789
Emílio Carlos Alves do Santos - https://orcid.org/0000-0002-7542-9034
Everllyn Suárez da Silva Oliveira - https://orcid.org/0000-0002-1271-6634
Hannah Krysttel de Lima Barrozo - https://orcid.org/0009-0003-5992-9658

Corresponding author
e-mail: cassia.costa@ebserh.gov.br

Introduction: In emergency healthcare units, such as cardiac and respiratory arrests (CPR), can occur at any moment, making it of paramount importance to have a trained and engaged team for initial emergency care.(1) To achieve this, having emergency materials readily available and easily accessible, along with a well-trained multiprofessional team, ensures the best possible outcome for this patient population. *In-situ* simulation (ISS) is widely used in professional training, as it is conducted in the actual workplace environment, offering many advantages such as scenario fidelity, greater participant engagement, identification of process improvements, and enhancements in the quality of care and patient safety.(2)

Objective: Describing the experience of implementing a training project for a multiprofessional neonatal screening unit on the use of the automatic external defibrillator (AED) facilitated through ISS.

Methods: Descriptive study, of the experience report type. An ISS was conducted at the Neonatal Screening Unit for the implementation of an AED. To do so, we organized the simulation into several stages: briefing, intra-simulation, and debriefing. During the briefing, we conducted skill stations, covering chest compressions and ventilation using a Bag-Valve-Mask on children and newborns, as well as another skill station using the AED. This stage took place in one of the classrooms in the hospital's educational annex. Afterward, the participants were taken to the unit where they work to apply simulated cases. Three clinical cases were administered, designed based on situations previously experienced by the team. All members of the multiprofessional team had the opportunity to participate in at least one applied case. At the end of the cases, the team gathered in one of the unit's offices for the debriefing session.

Results: In-situ simulation provided knowledge to the multiprofessional team regarding the use of the AED and identified the need for organizational improvements in the unit, such as relocating the emergency cart and creating a catalog with important phone numbers for emergency situations in the unit. It also highlighted the absence of pediatric pads for the AED, leading to an urgent purchase of two pairs of pediatric pads. Another significant outcome was the assessment of participants' knowledge levels before and after the training.

Conclusion: It is concluded that ISS was a relevant teaching and learning method because it allowed for the integration among the professionals involved and a better understanding of the roles to be performed in a CPR situation. The fact that ISS took place in the workplace enabled full team participation in the unit, as well as a crucial opportunity to test and implement improvements in the work processes and infrastructure available for this type of care.

Keywords: High fidelity simulation training; Cardiopulmonary resuscitation; Neonatal screening

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SGPP number: Not applicable.

CAAE: Not applicable.

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Presentation Abstracts

CONTENTS

026

Realistic simulation for training nurses and doctors in advanced adult cardiopulmonary resuscitation: an experience report

Andréa Rodrigues Baldin de Moraes[1], Glaucia Ranquine Luz[2], Luciana Lopes Busquet Ferreira[2], Rosiane Cristine Machado de Oliveira[1]

[1] Américas Serviços Médicos, São Paulo, SP, Brazil.
[2] Américas Serviços Médicos, Rio de Janeiro, RJ, Brazil.

Category: Experience Report

Andréa Rodrigues Baldin de Moraes - https://orcid.org/0009-0009-1256-6355
Glaucia Ranquine Luz - https://orcid.org/0009-0008-6010-0878
Luciana Lopes Busquet Ferreira - https://orcid.org/0000-0001-5320-0370
Rosiane Cristine Machado de Oliveira - https://orcid.org/0000-0003-1796-9806

Corresponding author
e-mail: luciana.busquet@gmail.com

Introduction: The premise of the advanced adult cardiopulmonary resuscitation course is to train nurses and doctors in recognizing arrhythmias and dealing with cardiorespiratory arrest situations. Studies show that resuscitation teams with one or more members trained in cerebrovascular accident have better patient outcomes.(1)

Objective: The blended learning course aims to ensure that doctors and nurses are trained in recognizing and caring for cardiac arrhythmias and cardiopulmonary arrest (CPA), with less face-to-face time and lower costs, while maintaining the quality of the training.

Methods: The training is carried out in a blended learning(2) format, where in the first stage the student takes a theoretical e-learning course on the virtual learning platform provided by the Organization, with a duration of 2 hours. At the end of the theoretical content, the student must take a post-test and pass with a minimum grade of 7.0 (seven) in order to go on to the next stage of the course, consisting of face-to-face training, with a workload of 8 hours, held at the corporation's training center. The students are divided into groups to be rotated through five skills stations: airway, basic cardiopulmonary resuscitation, technology review, brady station and tachycardia evolving to CPR in the rhythms of Ventricular Fibrillation (VF) / Pulseless Ventricular Tachyarrhythmia (POTV) / Pulseless Electrical Activity (PEA) / Asystole and return of spontaneous circulation. After all the students have taken part in this rotation, they are given a clinical case of a brady rhythm disorder or tachyarrhythmia that evolves into cardiopulmonary arrest to monitor the conduct taken and approval, using a checklist with indications of successes and errors, directing the instructor to the appropriate corrections, where the student needs to achieve at least 70% success in each case solved. At the end of the course, students should be able to identify a cardiac arrhythmia and carry out cardiopulmonary arrest and post-CPR care.

Conclusion: The blended learning methodology encourages self-directed study, prior preparation of the student with maximized practice time in simulated training,(3) with professionals being able to recognize arrythmias, cardiopulmonary arrest and apply the care algorithm, ensuring effectiveness and safety in the immediate care of hospitalized patients, since early care aims to detect life-threatening disorders. The realistic simulation carried out in a controlled environment reinforces the algorithms and flows of care, sharing perceptions of teamwork, focusing on the clinic presented within the scenario, synergy in multiprofessional relationships and behavioral change,(4) as well as bringing the benefit associated with the blended modality of reducing the time the professional is removed from bedside care.

Keywords: Simulation training; Advanced cardiac life support; Education, continuing

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CAAE: Not applicable.

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Presentation Abstracts

CONTENTS

027

Use of deliberative practice of rapid cycles in the teaching of cardiorespiratory arrest in pre-hospital care

José Hiago Feitosa de Matos[1], Samyla Citó Pedrosa[2], Jefferson Oliveira e Silva[2], Jonas Allyson Mendes de Araújo[3], Paula Jordania Paixão de Souza[2], Yury Tavares de Lima[2], Maria Aparecida Chagas Rocha[2], Daniela Barboza Saboia Cruz[1]

[1] Serviço de Atendimento Móvel de Urgência, Juazeiro do Norte, Ceará, CE, Brazil.
[2] Serviço de Atendimento Móvel de Urgência, Eusébio, Ceará, CE, Brazil.
[3] Serviço de Atendimento Móvel de Urgência, Sobral, Ceará, CE, Brazil.

Category: Experience Report

José Hiago Feitosa de Matos - https://orcid.org/0000-0001-8473-7269
Samyla Citó Pedrosa - https://orcid.org/0000-0003-0287-5102
Jefferson Oliveira e Silva - https://orcid.org/0009-0002-3205-0232
Jonas Allyson Mendes de Araújo - https://orcid.org/0009-0008-7251-2132
Paula Jordania Paixão de Souza - https://orcid.org/0000-0003-0908-0652
Yury Tavares de Lima - https://orcid.org/0000-0001-6573-6041
Maria Aparecida Chagas Rocha - https://orcid.org/0009-0003-8766-1855
Daniela Barboza Saboia Cruz - https://orcid.org/0009-0006-2657-4071

Corresponding author
e-mail: jefferson.silva@samu.ce.gov.br

Introduction: Cardiopulmonary Arrest (CPA) is a global public health problem, requiring agility, communication and teamwork from the multidisciplinary healthcare team, as it can cause irreversible brain damage or death. Thus, the Deliberative Practice of Rapid Cycles (DPRC) emerges as a strategy for acquiring these skills.[1,2]

Objective: To report the experience of deliberative practice of rapid cycles in basic and advanced life support for prehospital adult cardiopulmonary arrest.

Methods: This is a descriptive study, of the experience report type, carried out from the experience of a nurse in a deliberative practice of rapid cycles in cardiorespiratory arrest with doctors, nurses, nursing technicians and assistance drivers of a public service of pre-hospital care in the state of Ceará, in the period of June 2023.

Results: Twelve professionals from different categories participated in the deliberative practice of rapid cycles. Initially, the participants received material in PDF format on the main conducts in cardiorespiratory arrest. On the day of the activity, the professionals were received in an auditorium set up with an emergency scenario, divided into groups of 03 people, forming a total of 04 groups for the activity. Then, the facilitator carried out the briefing, presenting the environment and materials to the professionals and reviewing the clinical case. Soon after, the deliberative practice of rapid cycles began, where each team provided assistance until the moment it made a mistake in some conduct. At that moment, the facilitator would interrupt, offer feedback and another team would start the assistance again. The activity lasted 40 minutes, ending when everyone completed the assistance without errors. To assist in the activity, the facilitator used a checklist prepared by the organization based on the AHA PCR protocol (2020). Proceed with the debriefing, using the Gibbs reflective cycle. During the simulation, professionals practice teamwork, closed loop communication, compressions and ventilations.

Conclusion: It was concluded that the simulation with the use of the deliberative practice of rapid cycles brought to the facilitator an innovative and effective teaching strategy for teaching emergency contents and to develop technical and non-technical skills for health professionals in pre - care hospital.

Keywords: Heart arrest; Simulation training; Emergencies; Emergency medical services

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CAAE: Not applicable.

Research funding: No financial support.

Presentation Abstracts

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028

Simulated gas station explosion disaster: an experience report

Fabiana Alves Da Conceição Melo[1], Flávia Ferreira da Costa[1], Rosana Gomes dos Santos[1], Natalia Martinez Vanni[1], Carolina Cristina Garcia[1]

[1] Hospital Samaritano Higienópolis, São Paulo, SP, Brazil.

Category: Experience Report

Fabiana Alves Da Conceição Melo - https://orcid.org/0000-0002-8149-7973
Flávia Ferreira da Costa - https://orcid.org/0000-0003-2735-352X
Rosana Gomes dos Santos - https://orcid.org/0009-0002-4692-5597
Natalia Martinez Vanni - https://orcid.org/0009-0000-3371-1544
Carolina Cristina Garcia - https://orcid.org/0009-0002-7758-3913

Corresponding author
e-mail: fabiana.melo@uhgbrasil.com.br

Introduction: A disaster is any incident, whether natural or not, in which the need for care exceeds the material and human resources immediately available, requiring extraordinary and coordinated measures to maintain the basic or minimum quality of care.(1) In this context, multi-professional teams play a fundamental role in providing high-performance care, minimizing damage and deaths, which is why continuous training is so important, using simulations as a strategy.

Objective: To report on the educational experience of a simulated disaster.

Methods: This is an experience report study, with a descriptive and qualitative approach, carried out in November 2022 in a private and general hospital in the state of São Paulo. The educational strategy applied was hybrid, with virtual training addressing the care of multiple victims, and face-to-face training through a simulated gas station explosion scenario, with 7 victims. For the simulated scenario, technical sheets were drawn up for each case, covering identification and position of the victim in the scenario, sequence of primary and secondary assessment based on ATLS (advanced trauma life support) recommendations, key points, diagnosis, description of make-up, according to table 1. For the professional auditors/shadows, checklists were drawn up for each area involved in activating the disaster plan.

Results: The service took 1 hour and 38 minutes, involving 72 professionals, including: 07 victims, 9 auditors, 1 reporter, 4 administrative support professionals, 2 corporate professionals, 1 nurse in the ambulance and 1 driver, 3 work safety professionals and 1 family member. At the end of the simulation, a debriefing was held to discuss the strengths of each area and the points for improvement, as well as the actions that will be taken. A total of 45 people took part and were reinforced on the importance of recurring drills in each area.

Final considerations: The disaster response plan is tested annually to verify the effectiveness and responsibilities of the professionals as described in the institutional plan. Learning through simulations makes it possible to reproduce reality interactively in a controlled environment.

Keywords: Simulation training; Health human resource training; Patient safety

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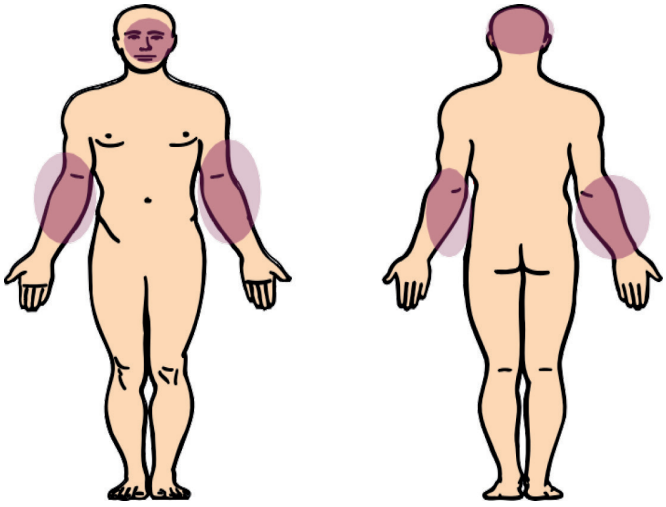
SGPP number: Not applicable.

CAAE: Not applicable.

Research funding: No financial support.

Table 1. Model of a technical sheet characterizing the victim

Simulated disaster		
Technical file		**Victim number 1**
Mannequin identification	Name: Andressa Shadow: RO Woman, 30 years	Victim's color Red
The victim's position in the scenario	The victim was near a gas station that caught fire and inhaled a large amount of smoke. Attended by APH unconscious, sent to emergency department in PPV and with AVP in MSE. They tried IOT in the scenario, but the equipment failed and they opted to transfer her in PPV. She was pale, with reduced peripheral perfusion and shallow breathing.	
A - Airways	Patents and patents.	
B - Respiration	Superficial and rapid. Decreased VM+ in both hemithoraxes, without AR. Chest symmetrical. Expansibility by PPV. FR = 28ipm Sat 02 =92% in PPV.	
C - Circulation	Dirt all over the body (charcoal). Fine peripheral and central pulses present. Cianose labial E.C = 2 Seg. PA=120x70mmHg Pulse = 55 Rhythm = regular	
D - Neurological	Pupilas isocóricas Glasgow: A = 1 V = 1 M = 4 Total = 6	
Exhibition	Scorched, with soot.	
Abdome	Not affected	
Thorax	Innocent	
Extremities	Cold and cyanotic	
Injury prevention	Cervical collar.	
Remarks	Protect the VA with OTI (OTI on the first attempt with video laryngo, otherwise only on the third attempt), request an ICU place. If these measures are not taken, the patient may develop CRA due to hypoxia.	
Key points	Normal CT scan, if requested normal USG.	
Diagnosis	Intoxication due to smoke aspiration.	
Shadow	End scenario after referral to ICU. Describe notes:	
Make-up script	Victim: 1	



Make-up guidance: soot on face and mmss (exposed area)
Characterize the lesions
Guidance on the type of material to be used
Use the template to mark the lesions
Lip cyanosis
Unconscious victim

Presentation Abstracts

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029

Level of evidence of the use of high-fidelity simulations compared to low-fidelity simulations to assess knowledge, skills, attitudes, and competence of healthcare professionals

Henrique Herckert Reimann Samuel[1], Alessandra Mazzo[1], Barbara Casarin Henrique-Sanches[2], Dario Cecilio-Fernandes[3], Maria Gabriela Lima Ribeiro Pires[1], Marina dos Santos de Carvalho Pinto[1], Vitor da Mata Vaz[4], Jhony de Almeida Estevam[4], Maria Stella Peccin[4]

1 Faculdade de Odontologia de Bauru, Universidade de São Paulo, Bauru, SP, Brazil.
2 Universidade Estadual de Campinas, Campinas, SP, Brazil.
3 Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brazil.
4 Universidade Federal de São Paulo, São Paulo, SP, Brazil.

Category: Overview of Systematic Reviews

Henrique Herckert Reimann Samuel - https://orcid.org/0009-0009-0406-0127
Alessandra Mazzo - https://orcid.org/0000-0001-5074-8939
Barbara Casarin Henrique-Sanches - https://orcid.org/0000-0002-6531-8250
Dario Cecilio-Fernandes - https://orcid.org/0000-0002-8746-1680
Maria Gabriela Lima Ribeiro Pires - https://orcid.org/0009-0005-7839-7604
Marina dos Santos de Carvalho Pinto - https://orcid.org/0009-0008-4254-4125
Vitor da Mata Vaz - https://orcid.org/0000-0001-9161-489X
Jhony de Almeida Estevam - https://orcid.org/0000-0001-7552-4333
Maria Stella Peccin - https://orcid.org/0000-0003-0329-4588

Corresponding author
e-mail: mariagabrielalima10@hotmail.com

Introduction: Simulation-based training has become a fundamental educational strategy to increase students' and healthcare professionals' knowledge, skills, attitudes, and competences before practice. A high-fidelity simulation occurs when the scenario lends verisimilitude to the learning process, whereas a low-fidelity simulation does not entirely represent the real world.

Objective: To compare the acquisition of knowledge, skills, attitudes, and competence in high- and low-fidelity simulation training.

Methods: An overview of systematic reviews was conducted following the Cochrane Handbook for Systematic Reviews.[1] The National Library of Medline (PUBMED), Embase, Cochrane Library, PsycINFO, ERIC (Educational Resource Information Center), and CINAHL databases were meticulously searched on 25th May 2023. To formulate our research question, we used the PICO strategy:[2] P – students and healthcare professionals; I – high-fidelity simulation; C – low-fidelity simulation; O – knowledge, skills, attitudes, and competence. As a result, using the Rayyan® Software,[3] 521 articles were initially identified, among which 75 duplicates were excluded. Therefore, 446 titles and abstracts were carefully screened, and 63 were wholly read by two independent reviewers. Discrepancies were solved by a third-party reviewer. Details of the search strategy are shown in figure 1. The AMSTAR 2 measurement tool[4] was used to analyse the quality of the included systematic reviews. Similarly, two independent and blinded reviewers performed the study, and disagreements were resolved by a third author. This review protocol was registered in the Open Science Framework (https://osf.io/54r3a/). As a secondary study, this overview is exempt from ethical approval.

Results: The eleven eligible studies were entitled E1-E11,[5-15] as demonstrated in table 1. Articles published from 2012 to 2019 were included, with a higher prevalence in North America (36.4% in the USA and Canada). The population encompasses students and healthcare professionals from various healthcare careers, predominantly Nursing and Medicine (66.7%). Regarding the comparison of these two simulation methods, there was heterogeneity in the results. Among the included studies, five (45.5%) stated that knowledge, skills, attitudes, and competence acquisition were more

effective with high-fidelity simulated practice, four (36.4%) declared no beneficial difference between them, and two (18.2%) indicated that there is no clear evidence concerning the best choice. In accordance with the AMSTAR 2 results, one review was of high quality and the other ten were of low quality.

Conclusion: Considering the above-mentioned outcome, as the level of evidence in most studies is low, no definite conclusion can be drawn from the superiority of one method over the other in respect of knowledge, skills, attitudes, and competence. It is indispensable to develop updated primary research with robust methodological designs to reach a decisive conclusion.

Keywords: Simulation training, High fidelity simulation training; Knowledge; Health personnel; Students, health occupations

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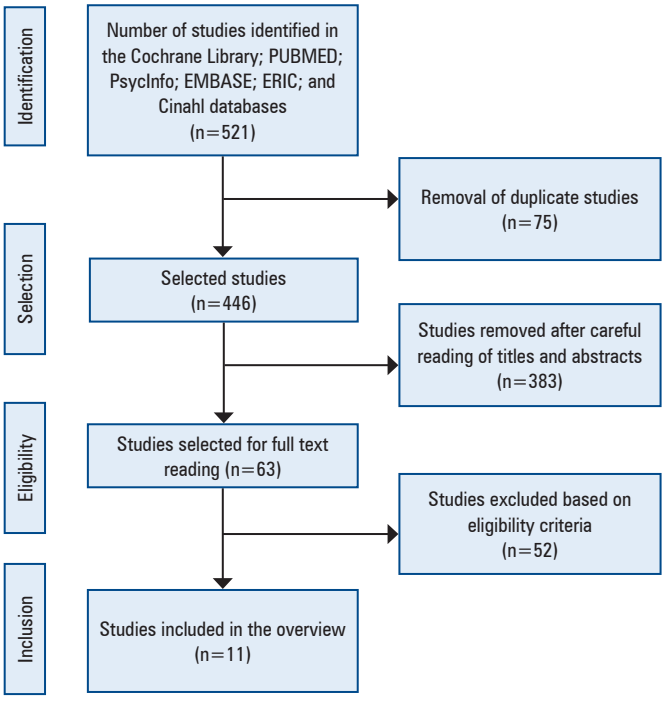

Figure 1. Flowchart of the study selection process

Table 1. Key characteristics of included studies

Study	Authorship	N (Trials/ Patients)	Objectives	Assessed gains	Key findings
E1	Hegland et al., 2017[5]	15 trials; 852 patients	To assess and synthesize the effect of simulation-based training on nurses' skills and knowledge	Skills and knowledge	The results are statistically significant in favour of high-fidelity simulation
E2	Roberts et al., 2019[6]	6 trials; 16 patients	Evaluate the effectiveness of high-fidelity simulation versus low-fidelity simulation in the development of practical/clinical skills in physiotherapy students	Skills performance, self-efficacy, and confidence	There is no high-quality evidence that high-fidelity simulation improves skills performance
E3	Alanazi et al., 2017[7]	30 trials; 3284 patients	Evaluate and systematically analyse the best available evidence (level and quality) for the use of simulation training to enhance knowledge, clinical skills, and self-confidence among healthcare students	Knowledge, skills, and confidence level	Knowledge, skills, and self-confidence increased both in high-fidelity simulation (HFS) and low-fidelity simulation (LFS). Another study indicated that self-confidence and satisfaction increased more in HFS compared to LFS. Inhibition decreased in both simulations
E4	Onan et al., 2017[8]	26 trials; No info	Review and synthesize evidence on characteristics and effectiveness of simulation team cardiopulmonary resuscitation interventions	Satisfaction, attitude, perception modification, knowledge, skills acquisition, and retention	Students' performance was not related with the simulation fidelity
E5	Mundell et al., 2013[9]	182 trials; 16.636 patients	Summarise the available data on simulation-based training in resuscitation for healthcare professionals	Skills, knowledge, and satisfaction	Overall, the results slightly favour high-fidelity simulations over low-fidelity simulations, although not significantly
E6	Au et al., 2019[10]	16 trials; 1192 patients	Systematically evaluate interventions that enhance skills retention following advanced structured resuscitation training programs designed for healthcare professionals	Skills retention	There was no significant difference between the groups that trained with high-fidelity simulation and those with low-fidelity simulation
E7	Heskin et al., 2019[11]	6 trials; 187 patients	Examine the evidence regarding the educational effectiveness of open surgery simulators or task trainers among surgical interns	Knowledge, skills, satisfaction with the model and completion time	Higher self-confidence, skills, and knowledge in high-fidelity simulation groups. More studies are needed to provide stronger evidence for the educational value, validity, and transferability of skills
E8	Cooper et al., 2012[12]	24 trials; 1398 patients	Examine the evidence for simulation-based learning in obstetrics education	Performance (knowledge and skills)	High-fidelity simulations were associated with higher success rates in performance
E9	Olson et al.; 2018[13]	47 trials; 220 patients	Review the use of simulation in pre-licensure nursing education and identifying paths for nursing education and future research	Knowledge and teamwork	In some trials, the effectiveness of HFS was higher, while in others, LFS showed better results
E10	Huang et al., 2019[14]	15 trials; 15.221 patients	Evaluate the educational effectiveness of high-fidelity simulations compared to low-fidelity simulations and other instructional methods	Knowledge and team behaviours	High-fidelity training is effective in the short term, but the benefits are moderate compared to low-fidelity simulation training
E11	Beal et al., 2017[15]	15 trials; 370 patients	Evaluate the effectiveness of simulation for intensive care learning in medical students compared to other teaching methods and determine which type of simulation is most effective	Knowledge, skills, performance, and confidence	High-fidelity was more effective than low-fidelity and other methods

030

Hybrid simulation in emergency childbirth care: an experience report

Raquel Ribeiro Lira Diógenes[1], Manuela Costa Melo[1], Leila Bernarda Donato Göttems[1], Luiz Gustavo Ribeiro dos Santos[2], Lívia Motta Miranda[2], Jean Carllos Moura Rodrigues[2], Ana Paula Assunção Moreira[3], Flaviana Vely Mendonça Vieira[3]

1 Faculdade de Ciências da Saúde, Universidade de Brasília, Brasília, DF, Brazil.
2 Universidade de Brasília, Brasília, DF, Brazil.
3 Universidade Federal de Goiás, Goiânia, GO, Brazil.

Category: Experience Report

Raquel Ribeiro Lira Diógenes - https://orcid.org/0000-0002-0427-6763
Manuela Costa Melo - https://orcid.org/0000-0002-2018-1801
Leila Bernarda Donato Göttems - https://orcid.org/0000-0002-2675-8085
Luiz Gustavo Ribeiro dos Santos - https://orcid.org/0000-0001-5572-9497
Lívia Motta Miranda - https://orcid.org/0000-0003-0716-6313
Jean Carllos Moura Rodrigues - https://orcid.org/0000-0003-2167-017X
Ana Paula Assunção Moreira - https://orcid.org/0000-0001-8549-3788
Flaviana Vely Mendonça Vieira - https://orcid.org/0000-0002-3085-9428

Corresponding author
e-mail: anapaulamoreira13@hotmail.com

Introduction: Clinical simulation, in its various modalities, has been one of the most widely used strategies for promoting critical and reflective learning.(1) One of these modalities is hybrid simulation, which occurs when a live mannequin (simulated patient) is combined with an anatomical part simulator or a low, medium, or high-fidelity static mannequin, used to bring more realism to the simulation.(1,2)

Objective: To report the experience of conducting a hybrid simulation of emergency childbirth in a public setting for nursing undergraduates.

Methods: This is an experience report on the application of hybrid clinical simulation for teaching and learning emergency childbirth care. The activity took place during the 17th University Week, organized by the University of Brasília, and among various themes, the decision was made to focus on Emergency (sudden) Childbirth. The briefing was conducted through an interactive-expository activity, which included slide presentations, a pelvic simulator, a fetal simulator, and a placenta and appendage simulator. At this moment, the students actively participated with the facilitator, discussing clinical stages of childbirth and the possible actions to be taken. Subsequently, for the development of the simulated scenario, students were given a clinical case of an emergency childbirth occurring in a public setting. The debriefing then followed, focused on the learning objectives.

Results: Participants could see that childbirth can occur at any time and in any place, but preparation is necessary not only for healthcare professionals but also for the general population. Participants positively evaluated the methodology used, reported increased confidence in their actions and satisfaction with their decision-making, as well as the development of both technical and non-technical skills. Students pointed out that hybrid simulation is a dynamic tool that allows them to experience a real-life scenario.

Final Considerations: Teaching based on active methodologies enables students to develop theoretical, practical, critical, and reflective skills on the topic at hand. Furthermore, the use of hybrid simulation proves to be a suitable and feasible tool, enabling the sustainability and democratization of education.

Keywords: Simulation training; Natural childbirth

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Presentation Abstracts

CONTENTS

031

Multiple Victim Incident Simulation as an educational tool

Luciano Barreto Quental[1], Samyla Citó Pedrosa[1], Jusciê Maia Silva[1], José Hiago Feitosa de Matos[2], Jefferson Oliveira e Silva[1], Francisco Nilson Maciel Mendonça Filho[1]

[1] Serviço de Atendimento Móvel de Urgência, Eusébio, Ceará, CE, Brazil.

[2] Serviço de Atendimento Móvel de Urgência, Juazeiro do Norte, Ceará, CE, Brazil.

Category: Experience Report

Luciano Barreto Quental - https://orcid.org/0009-0003-9700-0188
Samyla Citó Pedrosa - https://orcid.org/0000-0003-0287-5102
Jusciê Maia Silva - https://orcid.org/0009-0009-1180-2766
José Hiago Feitosa de Matos - https://orcid.org/0000-0001-8473-7269
Jefferson Oliveira e Silva - https://orcid.org/0009-0002-3205-0232
Francisco Nilson Maciel Mendonça Filho - https://orcid.org/0009-0002-6981-9877

Corresponding author
e-mail: drlucianoquental@gmail.com

Introduction: Multiple Casualty Incidents (MVI) are defined by the World Health Organization(1) as a sudden event, which creates an imbalance between available medical resources and the demand for care, as a result of the multiple number of victims. During this type of care, the scenario is dynamic and complex, requiring specific training from the health professional to work in the area.

Objective: Report the experience of realistic simulation aimed at IMV.

Methods: This is a descriptive study, an experience report type. Eight activities were carried out during 2022, from February to December, during all meetings the same strategy was repeated for different professionals. The scenario was built to simulate the care of 20 victims after a fight between criminal factions in a housing complex on the outskirts. The simulation took place at a training center located in Pacajus-Ceará.

Results: One hundred sixty-five professionals who work in emergency care participated in the simulation. The Simple Triage And Rapid Treatment (START) Method was used to classify victims. After rescue, the victims were placed on colored tarps, with the presence of a leader wearing a representative vest for each area. During care in the cold zone, the resources provided were limited, so that if a professional used more material than necessary to care for a victim, another person would be lacking. The simulation lasted 40 minutes. At the end, the debriefing was carried out and the professionals reported difficulty in choosing which material to use for each victim and recognized the need to carry out this type of training to improve care.

Final considerations: The simulated environment provides the development and improvement of professionals' skills, in a safe environment, minimizing the possibility of errors in real care

Keywords: Simulation training; Emergencies; Emergency medical services

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032

Realistic simulation: an educational methodology for the operating room focusedon international goals

Fabiana Alves Da Conceição Melo[1], Flávia Ferreira da Costa[1], Rosana Gomes dos Santos[1], Natalia Martinez Vanni[1], Carolina Cristina Garcia[1], Gisele Novais Ribeiro[1], Ligia Maria Abraão[1]

[1] Hospital Samaritano Higienópolis, São Paulo, SP, Brazil.

Category: Experience Report

Fabiana Alves da Conceição Melo - https://orcid.org/0000-0002-8149-7973
Flávia Ferreira da Costa - https://orcid.org/0000-0003-2735-352X
Rosana Gomes dos Santos - https://orcid.org/0009-0002-4692-5597
Natalia Martinez Vanni - https://orcid.org/0009-0000-3371-1544
Carolina Cristina Garcia - https://orcid.org/0009-0002-7758-3913
Gisele Novais Ribeiro - https://orcid.org/0009-0007-9358-1877
Ligia Maria Abraão - https://orcid.org/0000-0001-9285-3139

Corresponding author
e-mail: fabiana.melo@uhgbrasil.com.br

Introduction: The continuous improvement of nursing care is discussed daily in healthcare institutions. A great reference point for quality and patient safety are the six international safety goals, which are: correct patient identification; clear and effective communication; safety in the administration of medication; greater safety in surgeries, reduced risk of infection and patient falls.(1) Discussing the goals and correlating them with surgical practices is fundamental.

Objective: To report the experience of training with realistic simulation in the operating room with the aid of live mannequins in the care of patients undergoing surgical procedures.

Methods: This is an experience report study, with a descriptive and qualitative approach, carried out in October 2022, in a private and general hospital in the state of São Paulo. The educational strategy applied was realistic simulation, which included a circuit of three simulation rooms, with scenarios representing the preoperative, operative and post-anesthetic recovery (PACR) rooms. To carry out each stage, a systematized script was created with nursing actions to meet the patient's needs, in line with international targets, highlighting the importance of validating each stage of the patient safety process on admission, during hospitalization and on discharge from the operating room. A debriefing was held at the end of the scenarios, followed by a round table discussion on non-technical skills focused on empathy and assertive communication.

Results: A total of 100% of the nurses and nursing technicians in the operating room adhered, during the debriefing, points for improvement related to the six international goals were highlighted and the team was sensitized on awareness and the importance of ensuring compliance with the goals as well as a humanized approach centered on the patient's individual needs.

Final considerations: Training based on realistic simulation scenarios aligned with the international patient safety targets is designed to raise awareness and develop humanized work with quality care.

Keywords: Simulation training; Health human resource training; Patient safety

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Presentation Abstracts

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In situ simulation: enhancing training in non-critical care units

Marcela Mellatti Gomes[1], Leonardo Alves Sampaio[2], Roberta Correa Zani[1], Fernanda Magalhães Rodrigues[3], Lilian Martins Silva Arruda[4]

[1] Fundação Getúlio Vargas, São Paulo, SP, Brazil.
[2] Fundação Oswaldo Cruz, Rio de Janeiro, RJ, Brazil.
[3] Hospital Israelita Albert Einsten, São Paulo, SP, Brazil.
[4] Universidade Federal de São Paulo, São Paulo, SP, Brazil.

Category: Experience Report

Marcela Mellatti Gomes - https://orcid.org/0009-0000-8491-2936
Leonardo Alves Sampaio - https://orcid.org/0000-0001-8177-6385
Roberta Correa Zani - https://orcid.org/0000-0002-8180-9957
Fernanda Magalhães Rodrigues - https://orcid.org/0009-0005-5591-0006
Lilian Martins Silva Arruda - https://orcid.org/0009-0003-6371-5222

Corresponding author
e-mail: professorlas@gmail.com

Introduction: Realistic *in situ* simulation aims to provide an immersive experience that prepares participants to face real-world challenges, promoting effective learning, practical skills and a focus on patient safety.

Objective: The aim is to present *in situ* simulation in non-critical care units of a private network, for the management of adult victims in cardiac arrest (CA) in the first semester of 2023. We describe the process of this medical training, aimed at enhancing the skills and competencies of healthcare professionals[1] (physicians, nursing staff and physiotherapists). The scenarios took place in inpatient units, tomography and extra-hospital emergency care service. By creating clinical scenarios, *in situ* simulation provides participants with a practical and immersive experience.

Methods: Including scenario planning, checklist, integration of the multidisciplinary team and debriefing. We used technological, including low-fidelity simulators with rhythm simulators or medium-fidelity simulators, thereby expanding the possibility of scenario implementation across different units and states (São Paulo and Rio de Janeiro). **Results:** A positive impact on the clinical skills of participants, as well as on communication, process adequacy, and teamwork. After setting up the scenario, without prior communication with the teams, we initiated the activation of the code for CA response, marking times, arrival of professionals, actions taken, resources, structure, scenario management, and outcome. Simulation provides a safe environment for professionals[2] to experience challenging situations, enabling the identification of strengths and improvement opportunities, as identified in communication, use of biomedical equipment, training, and physical structure. Therefore, this report discusses the benefits of incorporating in situ simulation as an integral part of the continuous training program for healthcare professionals. The approach contributes to making assertive decisions, offering opportunities to identify weaknesses in victim care, stratified as opportunities: training in basic life support, advanced life support (ALS), physical structure (resources for activation, equipment, and supplies), and processes (knowledge and compliance with care based on Standard Operating Procedures (SOP)) and formation of the rapid response team (RRT), thus mitigating the occurrence of errors. Nationally, more than 30 simulated advanced life support response scenarios were conducted, leading to the revision of SOPs, RRT review, providing resources for the expansion of new vacancies for ALS training, and review of education team processes. All of which enhance patient care safety and empower our professionals to perform their roles in CA victim care through clinical reasoning and decision-making.[3] Through testimonials from healthcare professionals, we have evidence indicating how *in situ* simulation can improve team readiness and response in critical situations.

Conclusion: this report by emphasizing the importance of *in situ* simulation as a valuable tool for healthcare professional development. We recommend the adoption of this strategy in other non-critical care units to enhance the practice of healthcare professionals and raise healthcare standards. We highlight the need to expand the adoption and frequency of *in situ* simulation in non-critical healthcare units, as well as the ongoing importance of medical training programs that utilize this approach. *In situ* simulation prepares healthcare professionals to handle the dynamic challenges of the healthcare environment in a safer and more efficient manner.

Keywords: Simulation training; Health education; Heart arrest

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Presentation Abstracts

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034

Low-cost simulator for development of high-quality cardiopulmonary resuscitation skills

Francisco Nilson Maciel Medonça Filho[1], Samyla Citó Pedrosa[1], Darliane Maiara de Araújo Maciel Mendonça[1], José Hiago Feitosa de Matos[2], Jefferson Oliveira e Silva[1], Luciano Barreto Quental[1], Sarah Maria Mendes Gondim[1]

[1] Serviço de Atendimento Móvel de Urgência, Eusébio, Ceará, CE, Brazil.

[2] Serviço de Atendimento Móvel de Urgência, Juazeiro do Norte, Ceará, CE, Brazil.

Category: Experience Report

Francisco Nilson Maciel Mendonça Filho - https://orcid.org/0009-0002-6981-9877
Samyla Citó Pedrosa - https://orcid.org/0000-0003-0287-5102
Darliane Maiara de Araújo Maciel Mendonça - https://orcid.org/0009-0006-9298-5258
José Hiago Feitosa de Matos - https://orcid.org/0000-0001-8473-7269
Jefferson Oliveira e Silva - https://orcid.org/0009-0002-3205-0232
Luciano Barreto Quental - https://orcid.org/0009-0003-9700-0188
Sarah Maria Mendes Gondim - https://orcid.org/0000-0002-3406-6265

Corresponding author
e-mail: drnilsonmendonca@gmail.com

Introduction: High-quality Cardiopulmonary Resuscitation (CPR) increases the chance of survival in cardiorespiratory arrest. The analysis of chest analysis is related to an adequate frequency and depth.(1) Therefore, high-fidelity simulation emerges as a strategy for teaching these skills, however medium and high-fidelity simulators that provide feedback to learners are expensive and end up not being accessible to all educational institutions.(2) As a result, the facilitator can work on building a low-cost simulator that can be easily reproduced and achieve the objective proposed in the simulation.

Methods: This is a descriptive study, of the type of experience report. The construction of the material took place during the year 2019.

Results: The mannequin was built with a plastic tarp, cut in the shape of a torso for CPR. Inside the device was placed a 500ml plastic bottle and mattress sponge to fill the empty spaces of the mannequin. A printout of the anatomy of a human trunk was made to illustrate the mannequin. The mannequin was used in a pilot study with health professionals and lay people, who showed satisfaction with the handling of the equipment.

Final Considerations: The developed simulator will undergo validation by experts and an experimental study will be carried out to evaluate the effectiveness of the material built. However, it is noticed that the material favored the learning process during the pilot study.

Keywords: Heart arrest; Simulation training; Emergencies; Emergency medical services

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035

Realistic *in situ* simulation: enhancing training in non-critical units in hospital environments – experience report

Leonardo Alves Sampaio[1], Marcela Mellatti Gomes[2], Roberta Correa Zani[2], Fernanda Magalhães Rodrigues[2], Lilian Martins Silva Arruda[2]

[1] UnitedHealth Group, Education Amil, Rio de Janeiro, RJ, Brazil.
[2] UnitedHealth Group, Education Amil, São Paulo, SP, Brazil.

Category: Realistic *in Situ* Simulation

Leonardo Alves Sampaio - https://orcid.org/0000-0001-8177-6385
Marcela Mellatti Gomes - https://orcid.org/0009-0000-8491-2936
Roberta Corrêa Zani - https://orcid.org/0000-0002-8180-9957
Fernanda Magalhães Rodrigues - https://orcid.org/0009-0005-5591-0006
Lilian Martins Silva Arruda - https://orcid.org/0009-0003-6371-5222

Corresponding author
e-mail: professorlas@gmail.com

Introduction: Realistic *in situ* simulation is an advanced and effective approach in the field of modeling and training, which stands out for replicating real-world environments to provide a hands-on and immersive experience.(1)

Objective: In this experience report, the objective is to present the realistic *in situ* simulation in non-critical units of hospital environments in a private network. We describe the process of introducing this approach to medical training, which aims to improve the skills and competencies of healthcare professionals. By creating realistic, simulated scenarios in an authentic environment, *in situ* simulation offers participants a hands-on, immersive experience, allowing them to face common and unusual challenges encountered in everyday hospital life.

Methods: In this report, we detail the methodology used for training, including scenario planning, and the integration of the multidisciplinary team.(2) We also present the technological resources used in the simulation, such as high-fidelity mannequins, monitoring systems and real-time feedback.

Results: The results obtained with the implementation of the realistic *in situ* simulation demonstrated a positive impact on the participants' clinical skills, as well as on communication and teamwork.(3) The simulation provided a safe and controlled environment for professionals to experience challenging situations, allowing the identification of strengths and areas for improvement. Therefore, this report discusses the benefits of incorporating *in situ* simulation as an integral part of the ongoing training program for healthcare professionals. The approach contributes to reducing errors, improving the quality of patient care and increasing professionals' confidence in dealing with emergencies. Additionally, we discuss the role of advanced technology, such as high-fidelity mannequins and real-time feedback systems, in the effectiveness of *in situ* simulation. Through case studies and testimonials from healthcare professionals who participated in this approach, we present evidence on how realistic *in situ* simulation can improve team readiness and response to critical situations.

Conclusion: We conclude this report by emphasizing the importance of realistic *in situ* simulation as a valuable tool for the development of health professionals. We recommend adopting this strategy in other non-critical units in hospital environments in order to improve the practice of healthcare professionals and raise healthcare standards. We highlight the need to expand the adoption of *in situ* simulation in non-critical units in hospital environments, as well as the continued importance of medical training programs that use this approach. Realistic *in situ* simulation represents a powerful tool to increase the quality of patient care and professional performance, preparing healthcare professionals to face the dynamic challenges of the hospital environment in a safer and more efficient way.

Keywords: Realistic simulation; High fidelity simulation training; Simulation training; Staff development

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036

Use of simulation in teaching emergency medical regulation for medical undergraduate students at a college in Vitória, Espírito Santo

Julianna Vaillant Louzada Oliveira[1], Lara Coqui Machado[1], Gabriel Nunes Milagre[1], André Rocha Soares[1], Paula Campos Perim[1], Márcio Diniz Barreto[2], Simone Karla Apolônio Duarte[1], Caio Duarte Neto[1]

[1] Escola Superior de Ciências da Santa Casa de Misericórdia de Vitória, Vitória, ES, Brazil.

[2] Hospital Santa Rita de Cássia, Vitória, ES, Brazil.

Category: Experience Report

Julianna Vaillant Louzada Oliveira - https://orcid.org/0000-0001-8300-7328
Lara Coqui Machado - https://orcid.org/0000-0002-5598-6001
Gabriel Nunes Milagre - https://orcid.org/0000-0002-0751-7219
André Rocha Soares - https://orcid.org/0000-0002-5922-4952
Paula Campos Perim - https://orcid.org/0000-0003-1250-1673
Márcio Diniz Barreto - https://orcid.org/0000-0001-8044-5736
Simone Karla Apolônio Duarte - https://orcid.org/0000-0001-7867-6332
Caio Duarte Neto - https://orcid.org/0000-0002-9927-1374

Corresponding author
e-mail: julivaillant@gmail.com

Introduction: Currently, curriculums are based on the acquisition of competencies. Simulation, as an educational strategy that aims to reproduce real situations in a simulated environment, when combined with other active methodology techniques, will help us to deliver competent professionals to society.

Objective: To describe a Simulation activity involving students as authors and actors in emergency medical regulation scenarios.

Methods: The activity took place during the curriculum period of the Emergency Medicine course. Students were provided with supporting materials related to the topic in advance. The task was applied to two groups of 40 students in a Simulation Center, in 3 stages. Stage 1: pre-briefing on scenario construction, selection of available materials for the activity (mannequins, moulage materials, stationery), briefing on the topic of emergency medical regulation, division of the group into 3 teams, each with a theme (airway obstruction in a baby, cardiac arrest, and trauma). Duration: 40 minutes. Stage 2: Distribution of teams to skill rooms containing the presented materials for scenario ideation and practice. Duration: 40 minutes. Stage 3: Teams return to the auditorium for presentation, and image and voice rights are collected. The activity was filmed to support debriefing, with a duration of 30 minutes for each group, using the PEARLS tool. Three instructors, including an emergency physician, and two monitors conducted the activity. Duration: 90 minutes. To form the theoretical framework and discussion, research was conducted in the international PubMed database.

Results: There was full participation from all students. Stage 2 was supervised by monitors and instructors, with a notable involvement of the entire team, particularly in assigning roles to each participant based on their personal profiles and non-technical skills already developed. In the debriefing, all teams were actively engaged.

Conclusion: Simulation-based medical education is an important pedagogical strategy within modern training, providing a bridge between knowledge and practice.(1) Simulation-based teaching is a valuable tool that can be used for training in complex and high-risk situations.(2) It has been observed that simulation leads to better outcomes for patients and enhances teamwork-based skills.(3) To optimize communication skills, standardized patients are increasingly used in student education.(4) Given the above, as part of the Emergency and Urgent Care Network (RUE), the topic was addressed by the simulation team in a pioneering manner. Effective listening and the ability to define urgency levels assist in the decision-making process for the medical regulator and are fundamental skills for graduates of the medical

program. This helps ensure timely care, promoting universality and equity in healthcare through this central component of the RUE.

Keywords: Simulation training; Patient simulation; Emergency medicine; Emergency medical services

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Presentation Abstracts

Award 1st place

037

Rapid Cycle Deliberate Practice *versus* Postsimulation Debriefing in pediatric cardiopulmonary resuscitation training: a controlled randomized study

Laila Pinto Coelho[1], Rafael da Silva Giannasi Severino[2,3], Ana Carolina Amarante Souza[2,3], Katharina Reichmann Rodrigues[2,3], Fernanda Paixão Silveira Bello[2], Sylvia Costa Lima Farhat[2], Thomaz Bittencourt Couto[2,3]

1 Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil.
2 Instituto da Criança, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo, São Paulo, SP, Brazil.
3 Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Primary and Secondary Studies

Laila Pinto Coelho - https://orcid.org/0000-0002-7381-9549
Rafael da Silva Giannasi Severino - https://orcid.org/0000-0001-8691-533X
Ana Carolina Amarante Souza - https://orcid.org/0000-0002-9815-2090
Katharina Reichmann Rodrigues - https://orcid.org/0000-0003-3546-7746
Fernanda Paixão Silveira Bello - https://orcid.org/0000-0001-9179-8158
Sylvia Costa Lima Farhat - https://orcid.org/0000-0003-4036-5226
Thomaz Bittencourt Couto - https://orcid.org/0000-0003-4744-981X

Corresponding author
e-mail: lailapintocoelho@yahoo.com.br

Introduction: Simulation plays an important role in cardiopulmonary resuscitation (CPR) training.[1-4] Comparing Postsimulation Debriefing (PSD) to Rapid Cycle Deliberate Practice (RCDP) could help determine the best simulation strategy for pediatric CPR training among pediatric residents.

Methods: This is a single-blind, prospective, controlled randomized study. First and second year pediatric residents were enrolled and randomized into two groups (1:1 ratio): RCDP (intervention) and PSD (control). They participated in two rounds of simulated pediatric cardiopulmonary arrest in order to assess simulated pediatric CPR performance gain (round 1) and retention after a 5-6 weeks washout period (round 2). The scenarios were filmed and analyzed by blinded evaluators. The main outcome was time to initiate chest compressions. Secondary outcomes included time to recognize a cardiopulmonary arrest, time to recognize a shockable rhythm, time to defibrillation, time to initiate chest compression after defibrillation, and chest compression fraction.

Results: Sixteen groups participated in the first round and 15 groups in the second one. Time to initiate chest compressions decreased from pre intervention scenario to round 1 testing scenario and increased from round 1 to round 2 testing scenario. However, no interaction nor group effect were observed (p=0.885 and p=0.329). There were no significant differences between the two groups regarding the secondary outcomes.

Conclusion: Despite an overall improvement in simulated pediatric CPR performance, we could not observe significant differences between the two groups regarding the analyzed variables. The decline in simulated pediatric CPR performance after 5 weeks suggests the need for shorter time intervals between training sessions.

keywords: Patient simulations; Simulation training; Cardiopulmonary resuscitation; Pediatric emergency medicine

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Presentation Abstracts

038

Realistic simulation as a teaching methodology for assessing the diabetic foot: an experience report

Tiago Abreu Velloso[1], Rosana Vanessa Oliveira Silva[1], Ana Clara Vaz Silveira[1], Anna Laura Siqueira Costa dos Santos[1], Julia Mizuta Lacerda[1], Maria Eduarda Campos de Barcelos[1], Mateus Vinícius Martins Dutra de Miranda[1], Victoria Barros Bottaro[1], Vitor Barros Loureiro[1], Vitória Bernardes[1], Luiz Henrique Diniz Miranda[1]

[1] Faculdade de Ciências Médicas de Minas Gerais, Belo Horizonte, MG, Brazil.

Category: Experience Report

Tiago Abreu Velloso - https://orcid.org/0009-0000-0923-0345
Rosana Vanessa Oliveira Silva - https://orcid.org/0009-0006-9739-7295
Ana Clara Vaz Silveira - https://orcid.org/0009-0002-3230-9822
Anna Laura Siqueira Costa dos Santos - https://orcid.org/0009-0009-4692-0164
Julia Mizuta Lacerda - https://orcid.org/0009-0007-1873-7691
Maria Eduarda Campos de Barcelos - https://orcid.org/0009-0001-2286-3179
Mateus Vinícius Martins Dutra de Miranda - https://orcid.org/0009-0000-6803-4432
Victoria Barros Bottaro - https://orcid.org/0000-0002-4417-8615
Vitor Barros Loureiro - https://orcid.org/0009-0006-4551-2212
Vitória Bernardes - https://orcid.org/0000-0003-1807-8490
Luiz Henrique Diniz Miranda - https://orcid.org/0000-0003-1795-3062

Corresponding author
e-mail: luizhenriquedinizmiranda@gmail.com

Introduction: The diabetic foot is one of the main complications of *diabetes mellitus*, being the main cause of non-traumatic lower limbs amputation in Brazil.[1-4] The project "PEGADA: *Novos Caminhos para o Diabetes*" carries out educational and assistance actions, aiming for greater quality of care and promotion of self-care in diabetic people. To qualify the medical students' team, a skill based and simulated training in the Realistic Simulations Laboratory at the *Faculdade de Ciências Médicas de Minas Gerais* (LabSim) was proposed, including realistic simulation models and representation techniques.

Objective: Promote medical education through simulation and skill training.

Methods: The training was accomplished in four weekly meetings, in March 2023, using the infrastructure and equipment of the LabSim: i) Meeting 1, simulation of outpatient care for people with diabetes within the health education proposal; ii) Meeting 2, skill training focused on peripheral polyneuropathy research; iii) Meeting 3, skill training for the application and clinical management of insulin; iv) Meeting 4, review and set up of a checklist to guide care.

Results: The LabSim environment allowed the academic team to effectively assimilate the knowledge necessary for health education, presenting greater confidence and autonomy in the practical field. The team performed the trained skills and clinical situations experienced in simulation with excellency.

Final considerations: LabSim provided a favorable environment for the education and training of the medical students, exploring pedagogical possibilities and interdisciplinarity.

Keywords: *Diabetes mellitus;* Simulation training; Diabetic foot

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Presentation Abstracts

CONTENTS

039

Clinical simulation enhancing neurofunctional rehabilitation

Fernanda Cristina Caldeira Leitão Teixeira[1], Evelyn Franco Fonseca[1], Ana Claudia Arroyo Cruz[1], Mariana Santos Alecrim Molina[1]

[1] Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

Category: Simulation Training

Fernanda Cristina Caldeira Leitão Teixeira - https://orcid.org/0009-0000-2660-7239
Evelyn Franco Fonseca - https://orcid.org/0009-0004-1430-183X
Ana Claudia Arroyo Cruz - https://orcid.org/0009-0000-2463-1702
Mariana Santos Alecrim Molina - https://orcid.org/0000-0002-7839-1318

Corresponding author
e-mail: fernanda.teixeira@einstein.br

Introduction: This study presents a Rehabilitation-Simulation Interface Project designed to improve patient care in rehabilitation at *Hospital Israelita Albert Einstein*. The Rehabilitation Center provides comprehensive care, aiding patients' functional recovery and social reintegration. Physiotherapy and Occupational Therapy aim to foster independence through exercise, functional training, and adaptive strategies. The report focuses on the rehabilitation of a 55-year-old male anesthetist post Guillain-Barré Syndrome, hospitalized from January to April 2023. The rehabilitation plan targeted muscle strength, endurance, balance, and various motor functions. Immersive clinical simulations were utilized to understand the patient's professional demands.[1-3]

Objective: To enhance patient care at the Rehabilitation Center by integrating clinical simulations into the rehabilitation process.

Methods: A simulation scenario was created in the Simulation Center, replicating the patient's professional environment. Tasks such as peripheral venous access and orotracheal intubation were simulated. The patient, despite mobility limitations, demonstrated precision, safety, and balance during interactions with the mannequin. Identified areas for improvement included cardiovascular conditioning and muscle strength.

Results: The simulation highlighted the patient's abilities, showcasing precise movements and dexterity despite muscle weakness. Specific manipulations related to his profession were identified. Areas needing improvement were pinpointed, guiding the formulation of a new therapeutic plan addressing these requirements.

Conclusion: A tailored therapeutic plan was developed based on the simulation outcomes. Integrating simulation experiences into rehabilitation offers a unique advantage, enabling patients to practice skills equivalent to their occupational demands. This approach enhances patient outcomes and offers a distinctive rehabilitation journey.

Keywords: Simulation training; Rehabilitation; Physiotherapy; Occupational therapy; Guillain-Barre Syndrome

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Presentation Abstracts

040

Experience report on the construction of a simulated scenario using rapid cycles deliberate practice for the management of external ventricular shunt in pediatric patients

Ruana Luiz Ferreira da Silva[1], Ana Railka de Souza Oliveira Kumakura[2]

[1] Faculdade de Enfermagem, Universidade Estadual de Campinas, Campinas, SP, Brazil.
[2] Laboratoire d'Education et Promotion de la santé, Université Sorbonne Paris Nord, Paris, France.

Category: Experience Report

Ruana Luiz Ferreira da Silva - https://orcid.org/0000-0002-3144-5788
Ana Railka de Souza Oliveira Kumakura - https://orcid.org/0000-0002-7075-7987

Corresponding author
e-mail: rusilva@unicamp.br

Introduction: Clinical simulation correlates theory and practice in nursing teaching, is a teaching method that contributes to the critical and reflective reasoning of the student about decision making, in a safe and controlled environment.(1) The management of External Ventricular Derivation (LVD) make up the nursing care with detailed and judicious actions making essential the preparation of the professional, which can be addressed in the training environment.(2)

Objective: To describe the experience of building a simulated scenario using rapid cycles of deliberate practice for the management of EVD in pediatric patients.

Methods: Descriptive study, type of experience report of a master's student nurse on the construction of a scenario for clinical simulation in nursing.

Results: Part of the development of the simulated scenario was developed during the participation in the discipline Multiprofessional Clinical Simulation in Health of the program Rehabilitation Sciences HRAC/ USP Bauru, through meetings with tutors specialized in simulation and/ or pediatrics. The clinical case was formulated, and through it, the scenes were developed based on the expected skills of the student during the simulation. The discipline used the strategy of ordering simulated stations to start the construction of the proposed scenario.(3) After meetings with tutors of the discipline to discuss the material developed, we used the NLN Jeffries Simulation Theory (2016) to polish and finish the construction of the scenario. The type of simulation chosen was Rapid Cycles Deliberate Practice (RCDP), believing that the direct and immediate feedback, together with the possibility of redoing the cycle until achieving excellence, meets the general objective of the scenario, which is composed of three scenes, each representing a cycle, and the complexity increases over the course of the scenario.(4,5)

Conclusion: The construction of the scenario during a discipline focused on clinical simulation, as well as the use of the good practice guide in simulation of the International Nursing Association for Clinical Simulation in Learning and the model based on the NLN Jeffries Simulation Theory (2016), enabled the construction of a robust material with a greater chance of achieving its objectives in a SMART(6) way (specific, measurable, achievable, relevant, and timely).

Keywords: Simulation training; Pediatric nursing; Nursing care; Cerebrospinal fluid shunts

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Presentation Abstracts

041

Application of healthcare simulation for managers in delivering bad news: experience report

Hannah Krysttel de Lima Barrozo[1], Everllyn Suárez da Silva Oliveira[1], Josiane de Souza Rosa[2], Emílio Carlos Alves do Santos[2], Jocilene de Carvalho Miraveti[1], Cássia Janne Nonato Da Costa[2]

[1] Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil.
[2] Hospital Universitário Júlio Müller, Cuiabá, MT, Brazil.

Category: Experience Report

Hannah Krysttel de Lima Barrozo - https://orcid.org/0009-0003-5992-9658
Everllyn Suárez da Silva Oliveira - https://orcid.org/0000-0002-1271-6634
Josiane de Souza Rosa - https://orcid.org/0000-0002-6775-5569
Emílio Carlos Alves do Santos - https://orcid.org/0000-0002-7542-9034
Jocilene de Carvalho Miraveti - https://orcid.org/0000-0002-5432-4890
Cássia Janne Nonato Da Costa - https://orcid.org/0000-0001-9507-0789

Corresponding author
e-mail: hannah.krysttel02@gmail.com

Introduction: In the complex environment of hospital management, communication plays a crucial role at the intersection of healthcare professionals, patients, and their loved ones. The ability to convey complex content information empathetically and efficiently becomes paramount to ensure that patients receive safe and adequate care, even under unfavorable circumstances. In this challenging context, the use of healthcare simulations (HS) emerges as a strategic and empowering tool, providing professionals with the opportunity to practice and enhance their communication skills while addressing sensitive and delicate subject matter.

Objective: To report the experience of hospital management residents as participants in the implementation of a bad news communication scenario focused on management. Methods: This is a descriptive study of the experience report type.

Results: The experience took place through a theoretical-practical class in the hospital attention technologies discipline, offered to hospital management residents and professional master's students at a federal university hospital.(1) Following an expository lecture on HS, the facilitator requested volunteers to participate in a simulation. The volunteers included one resident and two master's students, who were directed to the simulation room where a briefing was conducted. The scenario addressed a never event, in which the volunteers portrayed the superintendent, a quality nurse, and a physician responsible for the procedure. Their goal was to communicate with the family members about the erroneous leg amputation due to patient identification failure. While the HS was taking place, other participants observed the simulation in the hospital auditorium. At the end of the scenario, a debriefing session was held with all the students. During the discussions, it was evident that the students lacked knowledge about the applicability of the HS method in this context. They recognized that this approach allowed healthcare professionals to experience different situations and adapt or enhance strategies to develop the necessary (self) confidence required for challenging conversations that demand empathy and resilience. By engaging in HS, the participants had the opportunity to receive constructive feedback, identify areas for improvement, and progressively refine their communication skills.

Conclusion: In the context of hospital management, HS provided a controlled and safe environment for error. Beyond the delivery of bad news, it was possible to create other scenarios and incorporate HS as an integral part of training, development, and team engagement. Consequently, it was possible to enhance the qualifications and expand the roles of various professions in dealing with difficult news situations, fostering interprofessionalism and respect in human relationships.

Keywords: Simulation training; Educational technology; Interdisciplinary communication

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042

Pressure injury prevention measures in intensive care: opportunities for improvement identified in the *in situ* simulation

Angélica Olivetto de Almeida[1], Juliany Lino Gomes Silva[2], Daniel Gonçalves Campos[2], Beatriz Calili Mansano[2], Ruana Luiz Ferreira da Silva[2], Ana Flávia Berton Vicente[2], Evelyn Greice Araújo Pimentel[2], Carolina Akmiy Schiezaro Falcioni[1], Érika Sana de Moraes[1], Ana Railka de Souza Oliveira-Kumakura[3]

[1] Hospital de Clínicas, Universidade Estadual de Campinas, Campinas, SP, Brazil.
[2] Faculdade de Enfermagem, Universidade Estadual de Campinas, Campinas, SP, Brazil.
[3] Maîtresse de Conférences d'Université Paris Cité, Paris, France.

Category: Primary and Secondary Studies

Angélica Olivetto de Almeida - https://orcid.org/0000-0001-5158-493X
Juliany Lino Gomes Silva - https://orcid.org/0000-0002-2930-103X
Daniel Gonçalves Campos - https://orcid.org/0000-0003-0729-6441
Beatriz Calili Mansano - https://orcid.org/0009-0007-2036-0993
Ruana Luiz Ferreira da Silva- http://orcid.org/0000-0002-3297-6361
Ana Flávia Berton Vicente - https://orcid.org/0009-0000-9074-8191
Evelyn Greice Araújo Pimentel - https://orcid.org/0009-0004-5201-6300
Carolina Akmiy Schiezaro Falcioni - https://orcid.org/0009-0000-6959-4431
Érika Sana de Moraes - https://orcid.org/0000-0002-3963-9683
Ana Railka de Souza Oliveira-Kumakura - https://orcid.org/0000-0002-7075-7987

Corresponding author
e-mail: olivetto@unicamp.br

Introduction: The need to improve the quality of care and promote patient safety has boosted the use of in situ simulation. This modality enables professionals in their workplace to reflect upon their actions, apply learning in the real world, and reinforce skills and teamwork.[1]

Objective: To identify the implementation of preventive measures for pressure ulcers (PU) in intensive care from an in-situ simulation scenario.

Methods: Feasibility study carried out in a tertiary teaching hospital in the interior of São Paulo. The scenario built and validated by experts followed the National League for Nursing/Jeffries Simulation Theory.[2] The aim was to assess the patient for the risk of PU and implement PU prevention measures through an educational intervention. The scenario set up in the intensive care bed with a standardized patient who had received previous training to represent a 65-year-old woman with pulmonary focus sepsis, low level of consciousness, and Braden Scale at high risk for PU. The materials for applying preventive measures were available in the simulation environment. The facilitators conducted the scenario and the debriefing, which addressed emotional, analytical, and reflective aspects,[3] and used a checklist with 24 items to verify the actions taken by the professionals.

Results: The scenario applied 24 times involved 74% of the team, totaling 60 professionals (21 nurses and 39 nursing technicians); 10 scenarios had nurses and nursing technicians, and 14 had nursing technicians only. The scenario lasted an average of 15 minutes, and the debriefing lasted 40 minutes. In the scenarios where nurses were present, it was noted that the Braden risk scale was not applied (90%) and that the decubitus change clock was not used for patient repositioning (50%). In addition, in the scenarios where only nursing technicians were present, the following were identified: lack of verification of the Braden scale (78%), lack of consultation of nursing notes and prescriptions (71%), no implementation of the pneumatic mattress (57%), lack of verification of the clock for repositioning (50%), no elevation of the calcaneus, (50%) and no use of a movable lining for moving the patient (50%).

Conclusion: The training with in situ simulation identified that the main PU prevention measures are carried out. Nevertheless, it is still necessary to reinforce the importance of using risk assessment scales and performing the nursing process for the continuity of care in an individualized manner, thus improving patients' safety.

Keywords: High fidelity simulation training; Simulation training; Pressure ulcer; Critical care nursing

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INSTRUCTIONS FOR AUTHORS

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The journal accepts original contributions in English only. After approval by the editors, all articles are referred to peer-review by at least two reviewers, who will remain anonymous throughout the entire review process. Reviewers' comments are sent to authors, so that they may revise their manuscript or give reasons for not altering it. After making corrections suggested by reviewers, the reviewed version of the article should be submitted to the **einstein** (São Paulo) through the journal's submission system. Articles are published only after the final acceptance by reviewers and editors. Authors are solely responsible for the concepts provided in articles.

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SECTIONS

The journal **einstein** (São Paulo) has the following sections: Original Article, Health Economics and Management, Case Report, Reviews, Learning by Images, Letters to the Editor, and Special Articles.

The journal also publishes Special Issues that contain Reviews and Original Articles on specific topics.

Original Article

Original Articles report results of scientific research relevant to medicine and health, including clinical, translational and basic research. The article must be original and unpublished and contain the following items: 1) Structured Abstract (Objective, Methods, Results, Conclusion), 2) Introduction, 3) Methods, 4) Results, 5) Discussion, 6) Conclusion, and 7) References. Original Articles should not exceed 4,500 words, 250-word Abstract, up to 7 figures/

tables and 50 references. All manuscripts determined to be of potential interest by the Editor and Associate Editors will be peer-reviewed.

Health Economics and Management

Articles designed to report knowledge expressing concepts that reflect on effective practices in health management, administration and economics. The following items must be included: 1) Structured Abstract (Objective, Methods, Results, Conclusion), 2) Introduction, 3) Methods, 4) Results, 5) Discussion, 6) Conclusion, and 7) References. They should not exceed 4,500 words, 250-word Abstract, up to 7 figures/tables and 50 references. All manuscripts determined to be of potential interest by the Editor and Associate Editors will be peer-reviewed.

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Case reports of a certain medical condition, particularly rare situations with relevant data to the reader, describing features, history, management of the case, etc., including a brief literature review, and relevant discussion. They should not exceed 1,000 words, 250-word Abstract, up to 2 figures/tables and 10 references. All manuscripts determined to be of potential interest by the Editor and Associate Editors will be peer-reviewed.

Review

Reviews will cover relevant topics in medicine, health and health economics. Reviews can be in the form of Systematic Reviews which present a synthesis of previous research, and use defined methods to identify, categorize, analyze and report on a specific topic. Reviews can also be in the form of Review Articles which are expected to bring new insights and perspectives to highlight key areas, or cover fields that are poorly understood. Often, reviews will be prepared by authorities in the subject area of the review. Simple reviews of the literature will typically not meet these requirements. Review Articles can be in the form of mini-reviews offering concise reviews on a focused topic of up to 2,000 words and 30 references or larger reviews covering a subject in more depth and up to 4,500 words, up to 4 tables/figures, 250-word Abstract, and up to 100 references. Reviews may be solicited by the editors, but prospective authors can also send a presubmission e-mail query to the journal explaining why the topic is important and relevant to the readership. All manuscripts determined to be of potential interest by the Editor and Associate Editors will be peer-reviewed.

Learning by Images

A typical pathognomonic image – ultrasound, computed tomography, X-rays, magnetic resonance imaging, photograph of surgery, microscopy or clinical sign – followed by an explanatory text. They should not exceed 300 words and 10 references. All manuscripts determined to be of potential interest by the Editor and Associate Editors will be peer-reviewed.

Letters to the Editor

Letters to the Editor can share important insights on topics relevant to medicine and health research, comment on or discuss papers published in the journal, or report ongoing original research, scientific findings, etc. They should not exceed 150 words and 5 references. Letters to the Editor will not go through peer-review and they will be published after evaluation by the Editor and relevant members of the Editorial Board.

Special Articles

This section includes topics with scientific relevance that fall outside of the categories above, and can include consensus reports, recommendations or guidelines. They should not exceed 3,000 words and 40 references. All manuscripts determined to be of potential interest by the Editor and Associate Editors will be peer-reviewed.

All contributions should follow the requirements below, which are based on the format proposed by the International Committee of Medical Journal Editors (ICMJE), published in the article Uniform requirements for manuscripts submitted to biomedical journals, available at http://www.icmje.org/recommendations/browse/manuscript-preparation.

TECHNICAL REQUIREMENTS

The authors must submit the articles containing:

- Text typed in double-spaced 12 point Arial font, 2.5cm margin on each side, highlighting each section of the article.
- Authors' statement that the manuscript is not under consideration, and will not be submitted to publication, in another journal (available at the electronic submission system).
- Studies performed that require animal or human subjects ethical committee approval must include in the methods section the appropriate ethical committee approval number. For example, human subject studies performed in Brazil must include the CAAE number.

- Conflict of interest disclosure statement from each author.

PREPARING A MANUSCRIPT

- **Title:** title of the article, in English, which should be concise, but informative.
- **Abstract:** abstract, in English, limited to 250 words. For original articles, abstracts should be structured (Objective, Methods, Results, Conclusion), describes the main parts of the work and highlights the most relevant data. For articles of other sections, the abstract should not be structured.
- **Keywords:** provide at least 5 and no more than 10 keywords, in English reflecting the content of the paper. Keywords must be based on the Medical Subject Headings (MeSH) of the National Library of Medicine, and available at https://www.ncbi.nlm.nih.gov/mesh/.
- **Registry in Clinical Trials Database:** indicate, for Clinical Trials, the registry number in the clinical trials database (https://clinicaltrials.gov).*
- **Text:** text must comply with the structure required for each category of article. Citations of authors in the text must be numbered sequentially, by superscript Arabic numerals in parentheses. The complete definition of abbreviations and acronyms should written before their first use in the text. Do not use abbreviations or acronyms in title and abstract. In table and figure legends, the abbreviations must be followed by the full term.
- **Acknowledgements:** this describes collaboration by individuals that deserve acknowledging but do not qualify for authorship. This section should also be used to provide information about financial and/or technical support, etc.
- **References:** they must be numbered consecutively in the same order they appear in the text, and identified by Arabic numerals. References follow the "Vancouver Style", and the titles of journals should be abbreviated according to the style presented by the List of Journals Indexed in Index Medicus, of the National Library of Medicine, available at http://www.ncbi.nlm.nih.gov/nlmcatalog/journals. For any references, mention up to six authors. In case of more than six authors, mention the first six, followed by et al., as shown in the following examples:

Articles from journals
Moniz MH, Low LK, Stout MJ. Intensive nurse home visiting program and adverse birth outcomes. JAMA. 2022;328(1):23-4.

Oliveira MM, Andrade KF, Lima GH, Rocha TC. Metformin versus glyburide in treatment and control of gestational diabetes mellitus: a systematic review with meta-analysis. einstein (São Paulo). 2022;20:eRW6155.

Books
Ritchie S. Science fictions: how fraud, bias, negligence, and hype undermine the search for trusth. New York: Metropolitan Books; 2020.

Chapters of books
Josephson CD, Strauss RG. Plasma transfusions. In: Behrman RE, Editor. Nelson textbook of pediatrics. 21st ed. Philadelphia (PA): Elsevier; c2020. p.2585-6.

Works presented in conferences
Rivarola E, Dimuro CA, Scandolo MC, Quintero Florez A. Design of gourmet menus high in fiber for diabetic patients of the French sanatorium: evaluation of the nutritional content, acceptability, organoleptic characteristics and glycemic control. Clinical Nutrition ESPEN. 2021;46:S690. [ESPEN 2021 Virtual Congress; 2021 Sep 9-14].

Thesis
Pinheiro LL. Avaliação da aorta torácica de brasileiros tabagistas por tomografia de tórax de baixa dose: diâmetros e prevalência de aneurismas [tese]. São Paulo: Faculdade Israelita de Ciências da Saúde Albert Einstein; 2021.

- **Tables:** all tables (≤ 4 tables) should contain the title and heading for columns and must be mentioned in the text. They should be numbered sequentially by Arabic numerals, in the order they appear in the text. Table footnotes should have a definition for abbreviations and statistical tests used.

* **Important note:** in support of the policies on registry of clinical trials of the World Health Organization (WHO) and ICMJE, the journal **einstein** (São Paulo) understands the relevance of these initiatives for registration and international dissemination of information on clinical studies. The journal only accepts for publication the clinical research articles that have received an identification number in one of the Clinical Trials Registries validated by the criteria established by the WHO and the ICMJE, available at https://clinicaltrials.gov or at the website PubMed, in the item <clinicaltrials.gov>. The identification number should be shown at the end of the abstract.

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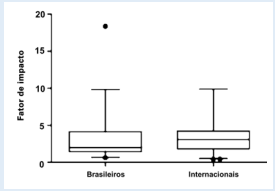
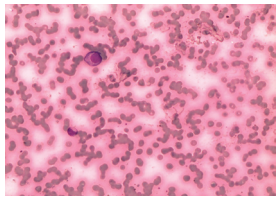
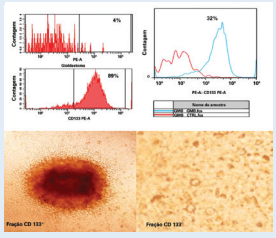
Image Type	Description	Example	Recommended Format	Color mode	Resolution
Line art	An image composed of lines and text, which contains no tonal or shaded areas		tif or eps	Monochrome 1 bit or RGB	900 to 1,200 dpi
Halftone	A continuous tone photograph containing no text		tif	RGB or Grayscale	300 dpi
Combo	Image contains halftone plus text or line art elements		tif or eps	RGB or Grayscale	500 to 900 dpi

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MANUSCRIPT SUBMISSION

Articles should be submitted to the journal **einstein** (São Paulo) at https://mc04.manuscriptcentral.com/eins-scielo. All authors must have an ORCID ID at https://orcid.org/signin.

Instructions for electronic submission

Articles should be submitted in Microsoft Word format. The file must contain the following:

- article title;
- a short title;
- full names of authors and their affiliation;
- name of the department and organization that the work should be attributed to;
- full name, address, telephone number and, E-mail of the corresponding author;
- an abstract and at least 5 and no more than 10 keywords;
- main text;
- references.

Note: Annexes, appendices, tables and figures (images, graphs, photographs, and illustrations) should be uploaded in the submission system. Please submit tables as editable text and not as images.

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