SAFETY

simulation for medical practice

SIMULATION APPROACH FOR EDUCATION AND TRAINING IN EMERGENCY

Handbook of the SAFETY outputs

SAFETY Work Package 5

R5.5 Handbook for the adoption of the project outputs

Lead partner: UniFG, with all partners support

Co-funded by the Erasmus+ Programme of the European Union

DOI: 10.30422/SAFETYHANDBOOK

Contents

1. SAFETY executive summary

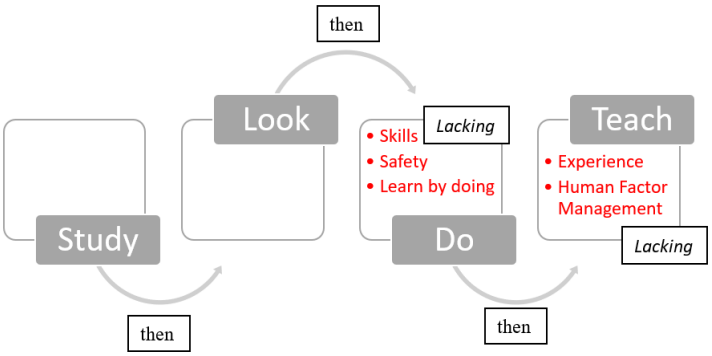
SAFETY is an Erasmus+ project, funded under the call "*KA2: Cooperation for innovation and the exchange of good practices - Knowledge Alliances - EAC/A02/2019"*. It started in 2020 and completed in February 2024, thanks to the contribution of **11 European partners** with different backgrounds, both from academia and companies' sector.

The **SAFETY project** can be considered a technique (served by technology) to amplify the learning process with high fidelity guided experiences in medical field, with a focus on **Emergency Medicine**. The project' activities are organized in 5 main Work Packages (WP).

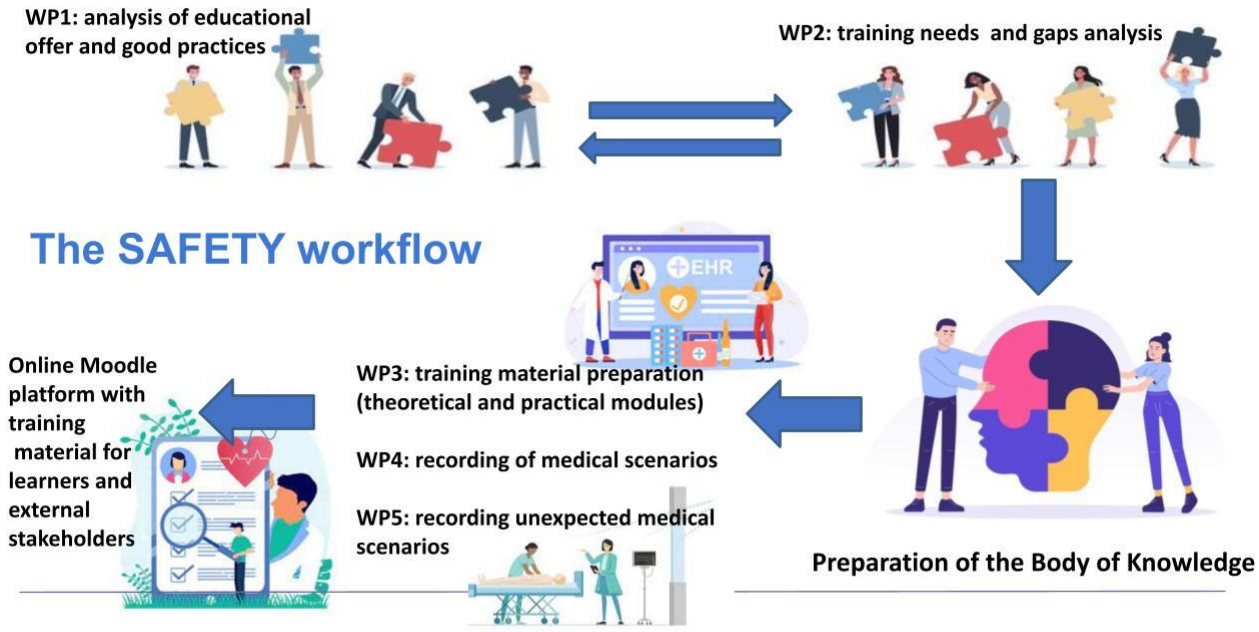
SAFETY partners developed a new educational course in the field of Emergency Medicine based on the learners' needs and the use of simulation devices for training.

The developed training material offers the possibility for learners to practice an activity in a safe environment without compromising patient safety, providing a wide range of curriculum requirements through several clinical cases.

SAFETY, a step behind the actual learning process.



SAFETY is contributing to boost training courses based on simulation and technology in medical field with the delivery of blended courses through the SAFETY Moodle platform.



2. Education & training convergences and divergences in Emergency Medicine

The SAFETY partners have assessed the *"theoretical framework of reference"* on the adoption of simulation in the medical field education and training useful to the later development of the learning materials and the design of online and conventional courses.

.....

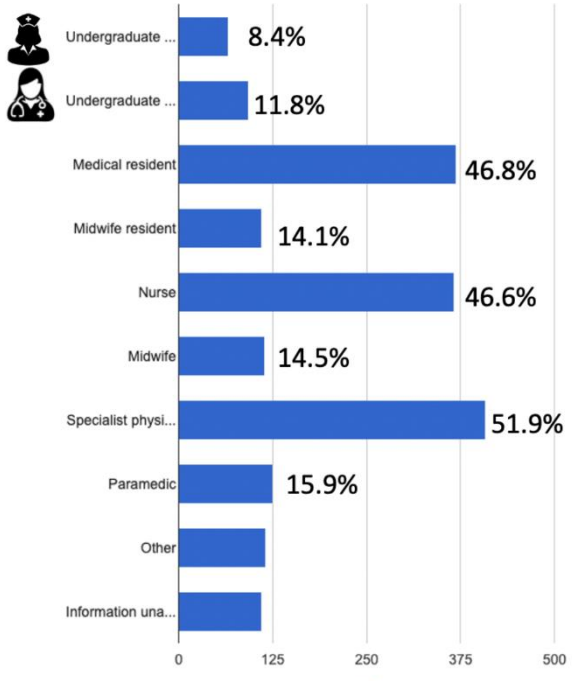
The desk research performed by the SAFETY partners focused on:

- University dealing with Emergency taught with simulation devices;
- Private partner companies developing simulation devices;
- Educational offer of the European Universities in the field of Emergency medicine;
- Scientific literature on advanced method applied for Emergency medicine, focusing on the optimal team acting during Emergency situations;
- Collection of best practice scenarios on systems already applied to simulate Emergency settings.

SAFETY numbers reached with the desk research:

- ***Courses analyzed: 789***
- ***Good practices analyzed: 8***

- Undergraduate nurses and physicians had the lower percentage of courses targeting them. Please see the bar chart below. The courses could target more than one group of population.

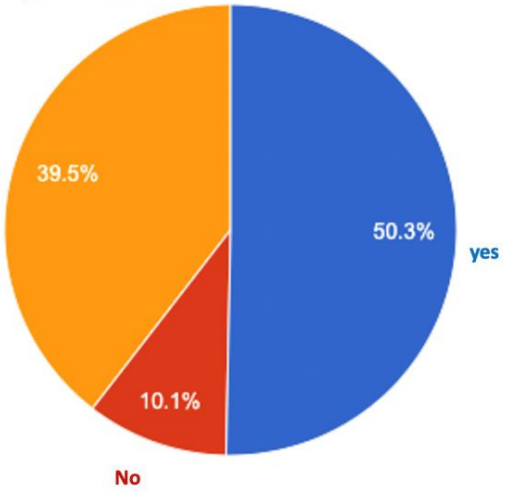


Bar chart showing the percentages of courses that target different group of population

Desk research main findings

- Lowest percentage of courses targeted to undergraduate nurses and physicians.
- Fewer courses targeting undergraduate physicians and prehospital Emergency staff in public hospitals.
- More courses targeting undergraduate physicians and nurses in public universities.
- More courses targeting nurses in private universities.
- More courses for prehospital Emergency staff in public and private simulation centers.
- Fewer courses related to Emergency management in public simulation centers.

- When it comes to the use of simulation, more than half of the courses included simulation. Please see the pie chart below.



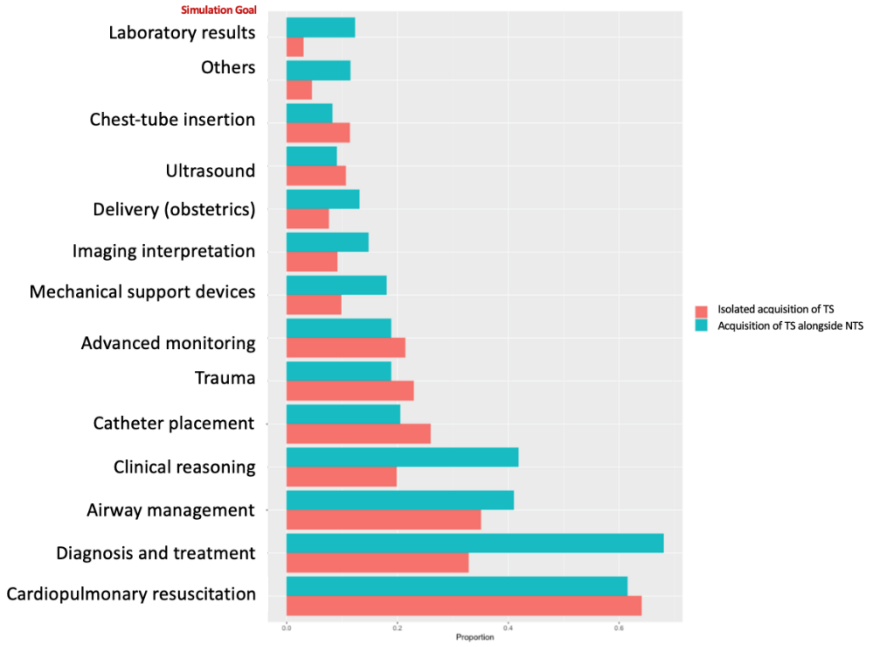
Pie chart showing the percentages of courses including simulation (blue), not including simulation (red), with information unavailable (yellow)

- Half of the Emergency educational offer included simulation.
- Significant tendency of courses including simulation not to be targeted to "team-patient communication" and "team-relatives communication".

- Among those courses that included simulation, we analysed the effect of adding NTS on the goals of TS courses. TS courses with goals related to diagnosis and treatment, and clinical reasoning were statistically more frequent when NTS were also included. Please see the bar chart and table below.

*NTS: Non-technical skills

*TS: Technical skills



Bar chart showing the proportion of different TS alone or in combination with NTS (both) in courses including simulation

Click here for more information about how the Emergency Medicine educational providers are reacting to technological changes that affect the way universities supply training and companies develop simulation devices.

3. Body of knowledge training main needs – BoK

The **SAFETY** partners performed the gap analysis with the aim to unveil distances between the optimal pathway to undertake according to the Desk research and the training needs pointed out by the target groups. All results are reported in a unique document: *"The Body of Knowledge"* (**BoK**).

The main sections of this report detail the knowledge, competencies, and skills to be developed in order to fill the gaps identified. The solutions illustrated in the BoK have represented the ones turned into the new course and training material developed by the SAFETY partners for the eLearning platform.

The **population**, from **7 EU countries,** under investigation was represented by:

- **Students** of degree courses in **Medicine** and **Surgery** enrolled in the 5th - 6th year of the course;
- **Students** of the degree courses in **Nursing** and **Obstetrics** enrolled in the 3rd year of the course;
- **Trainee Doctors** enrolled in the 1st and 2nd year of specialization.
- **Academics** (University Professors, Researchers, Hospital Tutors, Specialists in the field of Emergency Medicine)

SAFETY reached the following numbers for a deep needs analysis:

- *1464 Students involved in the survey and aware about the SAFETY project*
- *288 Academics involved in the survey and aware about the SAFETY project*
- *23 companies related to simulation field involved in the survey and aware about the SAFETY project*
- *12 questionnaires for students and academics (one per each language)*

Needs analysis main findings

- Higher importance attributed to the teaching method in **simulation** by both students and academics to learn technical skills) and non-technical Skills), if developed in simulation.
- Greater consideration of their abilities regarding **Technical Skills** shown by students than the opinion of academics towards them.
- Students have a good preparation in teamwork and **communication** compared to what academics thought of them.
- Students more advanced in training require courses geared to managing **teamwork** during emergencies.
- **Academics**, tend to prefer the use of simulation for teaching technical skills.

Click here for more information about training needs and gaps analysis for a better implementation of new education and courses in Emergency Medicine and medical field adopting simulation.

4. The SAFETY Learning platform

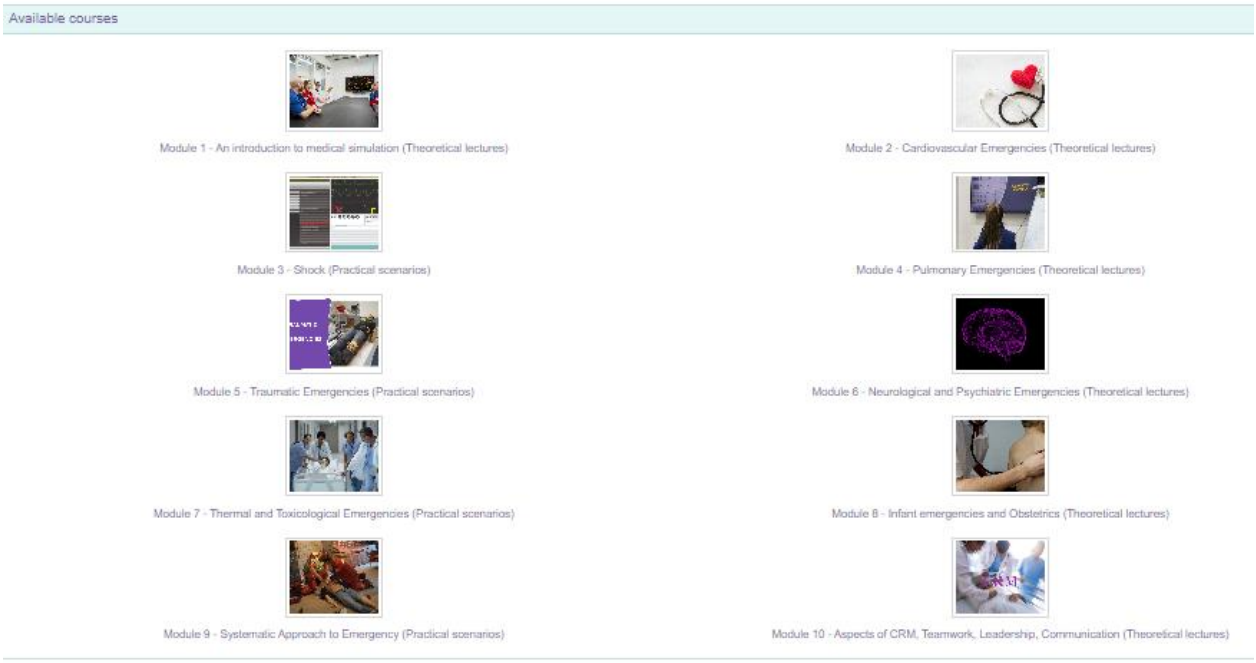
The SAFETY Learning platform is an innovative e-learning course aimed at enhancing Emergency medical education.

This learning platform represents one of the last result of the SAFETY project, developed by the SAFETY academic and company partners.

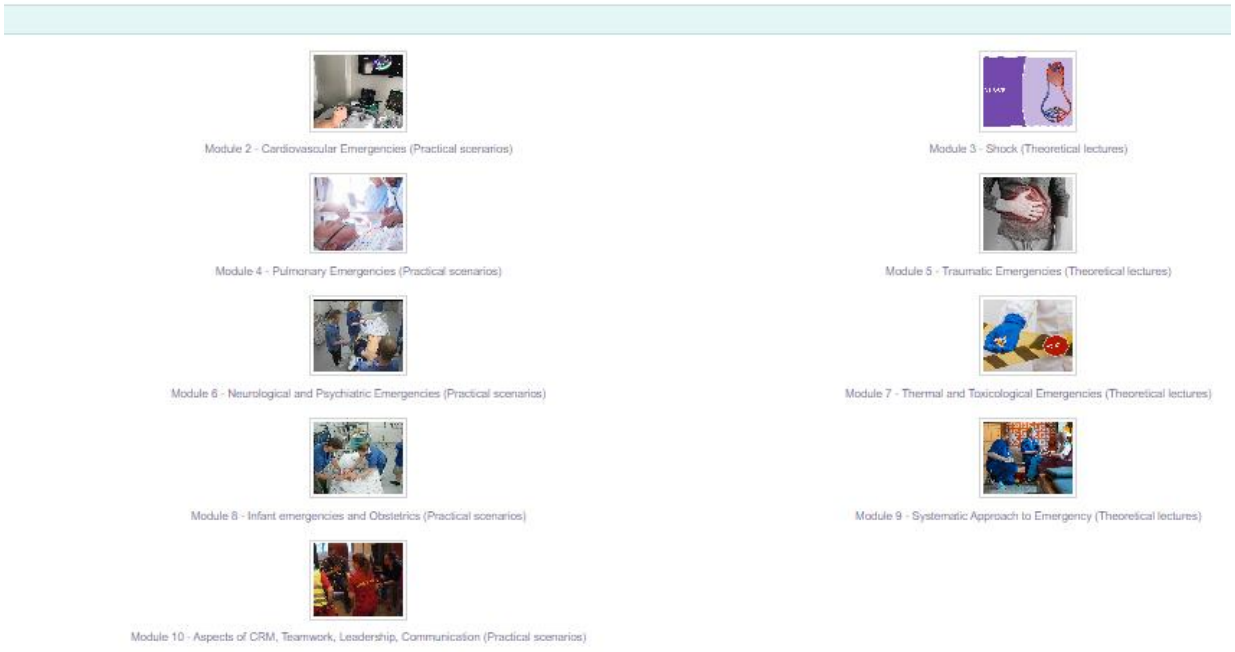
It integrates theoretical and practical modules with virtual simulated patients for a blended learning experience.

In particular, **ten peer-reviewed theoretical modules**, with comprehensive courses expanding on cardiovascular and respiratory emergencies, various types of shock, trauma, neurological diseases, thermal and toxicological emergencies, as well as a systematic approach to emergencies and introduction into the field of medical simulation.

Each theoretical module, developed by university partners, includes a minimum of **2 hours** of video recordings and presentations. These presentations have been subjected to internal and external peer review to ensure quality.



Furthermore, a total of **39 simulated emergencies** have been recorded by the teams involved in the project, so as to illustrate the approach to such cases by learners in multiple countries throughout Europe. These are structured as practical modules, and the featured clinical simulation scenarios have been enacted in simulation centers, covering a wide range of medical emergencies.



At the end of each module, including both theoretical and practical courses, the learner is given the occasion to solve a virtual case, using the virtual patient simulator offered by the partner from **Body Interact**.

A key component of the project is the use of multiple-choice questions (MCQs) for student evaluation. Each theoretical module concludes with a **pop-up quiz**, and after completing the entire course, learners take a test quiz with **30 randomly selected MCQs**.

This new tool contributes to a significant advancement in Emergency medical education, leveraging technology and collaborative expertise to create a comprehensive, accessible, and engaging blended learning experience to a broad range of stakeholders: **Medical students, Physicians in training (anaesthesia, intensive care medicine, Emergency medicine, and others), Nursing students, Paramedics.**

The SAFETY Learning platform is available online, click here to register and get access!

5. Top SAFETY news collection

List of the most viewed and shared news published on the SAFETY project website and through social media out of 50.

- **The importance of dissemination activities in EU projects** (Ranking: 17.800 Impressions and 704 clicks)

- **Do you know what psychological safety is not?** (Ranking: 7715 Impressions and 308 clicks)

- **Have you ever heard of smart objectives in European projects?** (Ranking: 1184 Impressions and 90 clicks)

- **How to foster leadership in medical teams** (Ranking: 3157 Impressions and 33 clicks)

- **Dream teams are made not born** (Ranking: 3930 Impressions and 22 clicks)

- **The SAFETY project at SESAM Lisbon 2023** (Ranking: 2749 Impressions and 14 clicks)

6. The SAFETY partners and contacts

SAFETY involves **11 Partners**, 5 universities, 1 safety center and 5 companies, from **7 European countries** (*Austria, Germany, Norway, Portugal, Romania, Spain, and Italy*) engaged in the field of ***Clinical education and training and Simulation device*** and with the aim to **improve the training offer in the Emergency Medicine and intensive care** sector.

Partner name		Main contact and info
Università di Foggia	**UNIFG (Project Coordinator)** The University of Foggia (UniFg), is a young and dynamic **University in the Apulia Region (South of Italy).**	gilda.cinnella@unifg.it lucia.mirabella@unifg.it fedele.colantuono@unifg.it www.medicina.unifg.it/it www.anestesia.unifg.it
FUNDACIÓ CLÍNIC BARCELONA / CLÍNIC BARCELONA Hospital Universitari	**FCRB** Fundació Clínic per a la Recerca Biomèdica (FCRB) was created in 1989 to manage and promote the research activities of Hospital Clínic de Barcelona (HCB), one of the best hospitals in Spain.	www.clinicbarcelona.org/en/idibaps ope@clinic.cat
Clínic Barcelona	**HUBc** Hospital Clinic of Barcelona is a public, centenary, university hospital, within the framework of Assistance, research and teaching.	simclinic@clinic.cat www.clinicbarcelona.org ope@clinic.cat
INSTITUTUL DE URGENTA PENTRU BOLI CARDIOVASCULARE "Prof.Dr.C.C.Iliescu" BUCUREȘTI	**EICD** The Emergency Institute for Cardiovascular Diseases “Prof Dr CC Iliescu”, Bucharest, is the main hub for cardiology, cardiac and vascular surgery in Romania and serves as an academic centre for research and teaching.	1danielaf@gmail.com mihai.stefan@umfcd.ro cornelia.florescu@yahoo.ro www.cesimab.com/ www.cardioiliescu.ro
LMU	**LMU** Ludwig-Maximilians-University (LMU) in Munich is the leading teaching and research university in Germany, ranking 1st in Germany in the 2020 Times Higher Education World University Ranking.	gs.inm@med.uni-muenchen.de marc.Lazarovici@med.uni-muenchen.de www.lmu.de www.lmu-klinikum.de www.inm-online.de/en/ Facebook, Twitter

University of Stavanger	**UiS** The University of Stavanger is a public, non-profit higher education institution situated on the south-west coast of Norway.	thor.o.gulsrud@uis.no camilla.jacqueline.hansine.normand@sus.no une.elisabeth.stomer@sus.no nina.vatland@uis.no mail@peter-dieckmann.de www.linkedin.com/school/18069 twitter.com/UniStavanger www.facebook.com/UniStavangerENG www.instagram.com/unistavanger
ValueDo	**VALUEDO** ValueDo S.r.l. is a consultant company based in Florence, specialized in activities of European, national, regional and local project management.	info@valuedo.eu www.valuedo.eu 91c.it facebook.com/91Ccoworking
[infotech]	**INFOTECH** Is a private company engaged in providing services to public and private entities relating to communication.	antonio.scrocco@outlook.it
Laerdal helping save lives	**LAERDAL** It is an International technical company specialized on simulation devices committed for helping to save an additional 1 million lives every year by 2030.	novella.callero@laerdal.com www.laerdal.com facebook.com/LaerdalItalia linkedin.com/company/laerdal-medical twitter.com/laerdalmedical
amc	**AMC** AMC is an internationally operating training and consulting company, and to support healthcare facilities patient-centered, advising and training simulation centers.	drabauer@amc-online.at www.amc-online.at facebook.com/medsimgroup linkedin.com/in/lukasdrabauer
BODY INTERACT™ VIRTUAL PATIENTS	**Body Interact** Virtual Patient Simulator, which facilitates the enhancement of critical thinking and decision-making skills for current and future healthcare professionals.	anasanta@bodyinteract.com facebook.com/BodyInteract instagram.com/bodyinteract twitter.com/BodyInteract linkedin.com/company/body-interact-inc

Südtiroler Sanitätsbetrieb / Azienda Sanitaria dell'Alto Adige / Azienda Sanitera de Sudtirol	**SABES** The Patient Safety Center of the Südtiroler Sanitätsbetrieb (SABES) is located in the Superior Health School "Claudiana" in Bolzano.	alex.staffler@sabes.it www.sabes.it/de/home (DE version) www.asdaa.it/it/home (IT version)

7. Useful links

List of links related to the simulation topic from different fields, e.g. other similar projects, databases, training material and external sources from European and National associations on simulation.

- **SESAM**, the society for Simulation in Europe, a hub for information on healthcare simulation.
- **SSIH**, the Society for Simulation in Healthcare, a hub for information on healthcare simulation.
- **SIMMED**, the Italian Association on Medical Simulation.
- **SIAARTI,** the Italian Society of Anesthesia, Analgesia, Resuscitation, and Intensive Care.
- **Advances in Simulation**, an open access simulation scientific journal.
- **ARTEKMED**, demonstrator of a novel telepresence modality, for teaching or direct healthcare.
- **SIMZINE**, the magazine for healthcare professionals, covering a broad spectrum of topics essential to simulation and education in healthcare.
- **HealthySimulation.com**, the world's premier Healthcare Simulation resource website.
- **Sessep**, the **Spanish Socie**ty of Clinical Simulation and Patient Safety.
- **SAFEMED+ Project**, Erasmus project on improving the quality of medical education in AM, GE and UA by introducing the medical simulation methods in Medical Curriculum.
- **BeEmTel**, a Higher Education Erasmus+ project beyond the Emergency, telecare for non-communicable diseases through simulation techniques.
- **TRANSSIMED**, an Erasmus+ project aiming to improve patient safety, increase the knowledge and skills of professionals using simulation.
- **Body Interact. Blog**
- **Medical** | Body Interact
- **Virtual Patients In Nursing Education** | Body Interact
- **Body Interact** | Simulation With Virtual Patients
- **Virtual Patients For High School** And CTE | Body Interact
- **Simulation-Based Learning** with Virtual Patients for Education and Training in Emergency Situations