



Simulation: A New Trend for Patient Safety Improvement

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**4TH ANNUAL CONGRESS
QUALITY & SAFETY IN HEALTHCARE: LUXURY OR NECESSITY ?**

**SEPTEMBER 23RD AND 24TH 2016
MONROE HOTEL- BEIRUT, LEBANON**



Objectives

- ✓ Reflect on the healthcare simulation 'movement' and its drivers
- ✓ Describe the basic terminology in simulation and types of simulators
- ✓ Discuss the key elements in Simulation-Based Education (SBE)
- ✓ Discuss the use of simulation for team training
- ✓ List the advantages and limitations of SBE
- ✓ Discuss the evidence of SBE

LAU-CSC: Simulation for Education and Patient Safety

<http://csc.lau.edu.lb>



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Recognition of the Value of Simulation

Aviation, military, NASA, nuclear etc..

- Simulation used and in many cases now *required*
- Adopted as a matter of necessity and expediency
- Now culturally embedded e.g. Federal Aviation Administration (FAA) requirement for pilot simulation



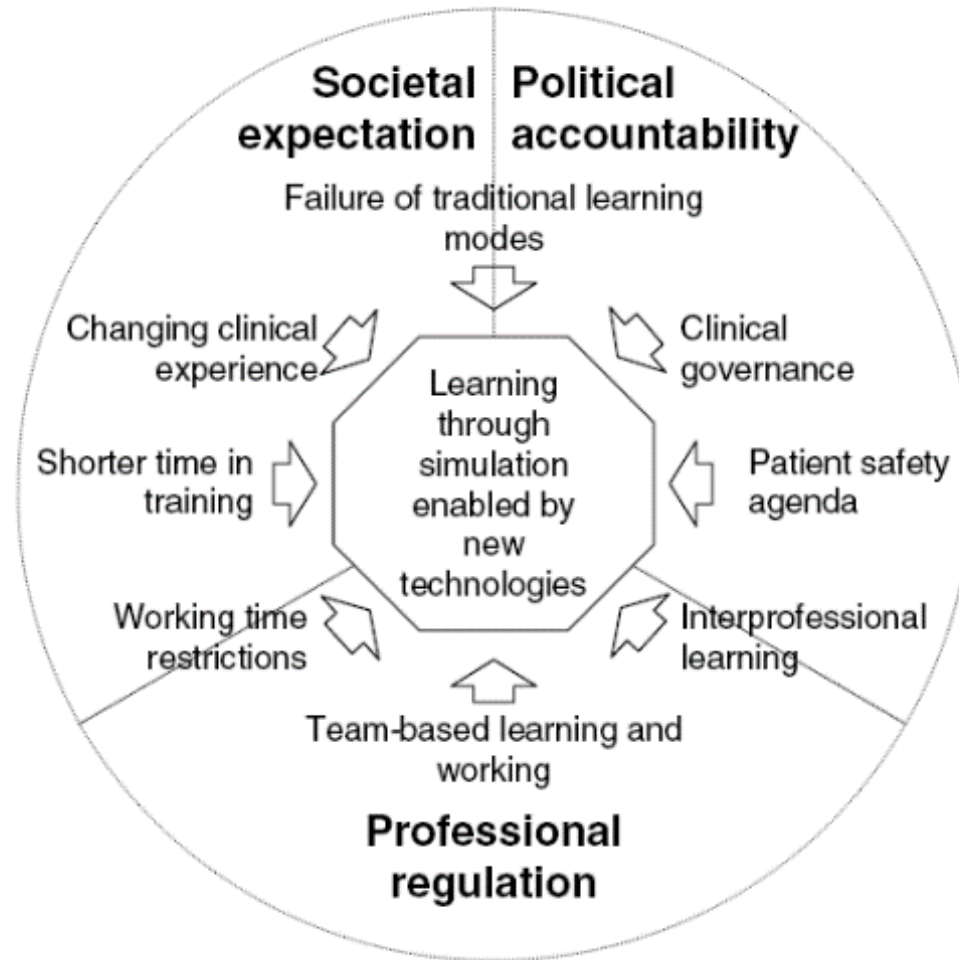


What is Simulation Based Education?

SBE is an **instructional process** that substitutes real patient encounters with artificial models, live actors, or virtual reality patients. *Gaba, 2004*



Why To Consider SBE?





Typical Uses of SBE



Psychomotor skills



Physical exam



Clinical reasoning



Communication and teamwork skills



Communication skills



Simulation Modes / Goals-Tools Match



task trainers

standardized
patient
simulations

immersive
simulations

hybrid immersive
simulations

in situ
simulations



Simulation Fidelity

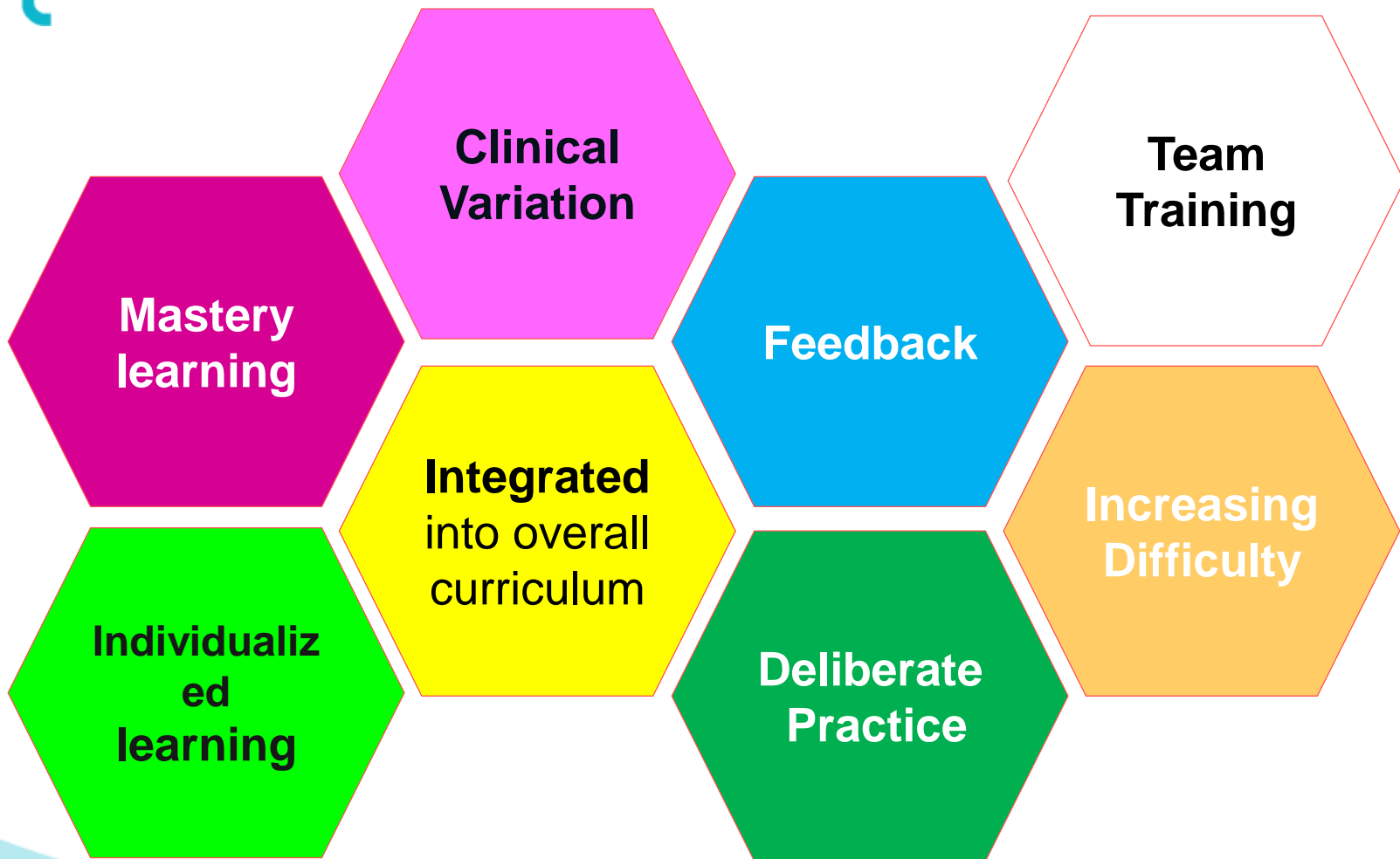


Fidelity = the level of realism

and not necessarily reflect the degree of technology



Features of Effective Simulation



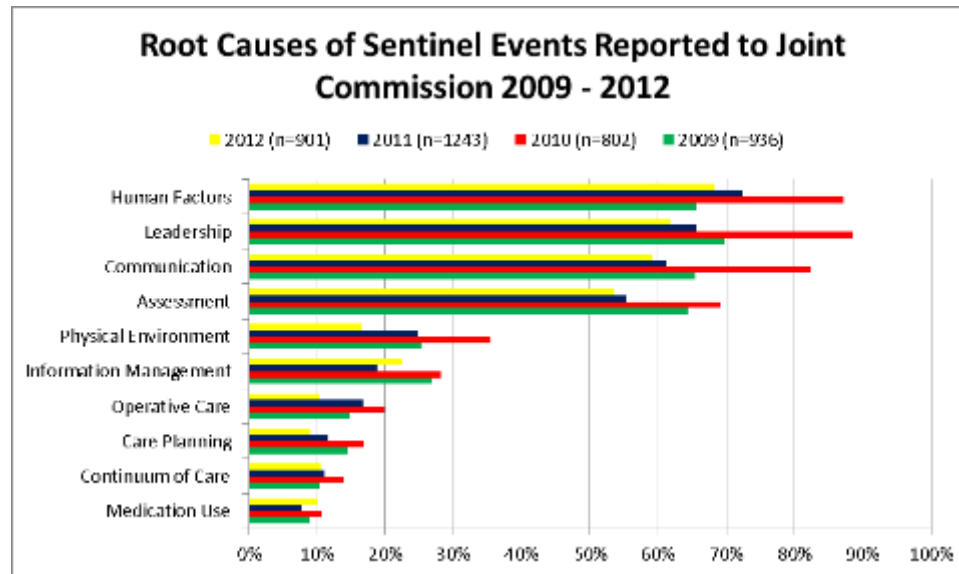
Motola I, et al. Simulation in healthcare education: A best evidence practical guide. AMEE Guide No. 82. Medical Teacher 2013. 35: e1511-30.
Issenberg S, et al. Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systemic review. Medical Teacher, 2005;27:10-28.



Team Training



- Team training allows practitioners from ≠ disciplines to improve clinical skills
- Team training helps to **avoid miscommunication**, which is a huge source of error in healthcare delivery



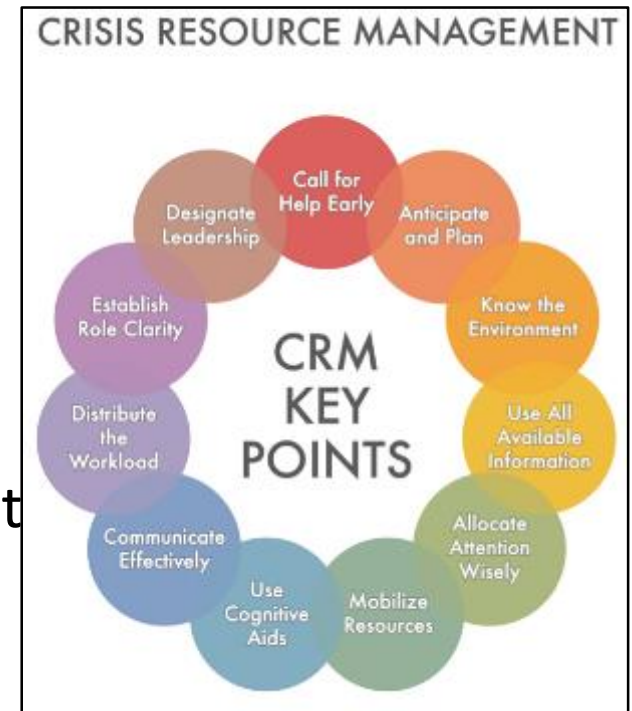
Information Exchange: Communication contributes to nearly 2/3 of sentinel events because effective communication does not come naturally



CRM

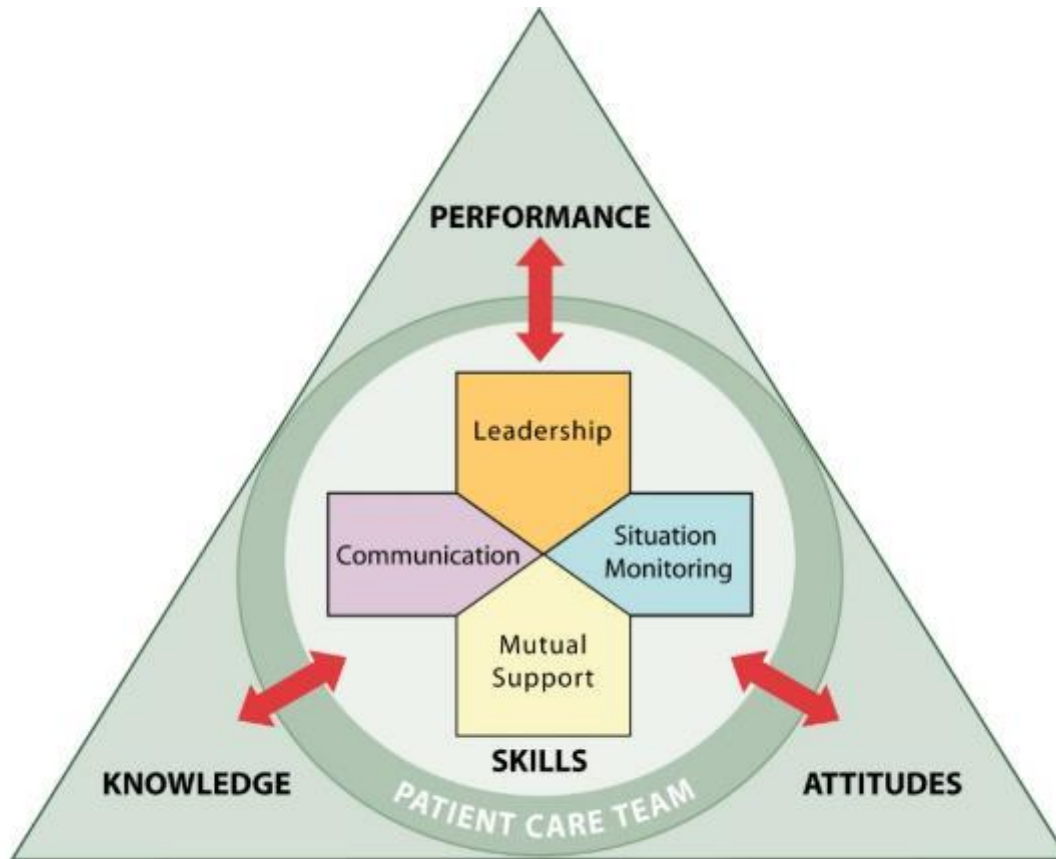
Crisis Resource Management

Implementation of traditional **CRISIS** algorithms by well trained **TEAMS** of HealthCare professionals working with **Drugs and Equipment** they understand.
Ex: Anesthesia Crisis Resource Management





TeamSTEPPS





What Does it Take for Simulation-Based Training be Effective for Patient Safety?

Table 1. Guidelines for Designing and Delivering Simulation-Based Training

- Guideline 1. Understand the training needs and requirements
- Guideline 2. Instructional features, such as performance measurement and feedback, must be embedded within the simulation
- Guideline 3. Craft scenarios based on guidance from the learning outcomes
- Guideline 4. Create opportunities for assessing and diagnosing individual and/or team performance within the simulation
- Guideline 5. Guide the learning
- Guideline 6. Focus on cognitive/psychological simulation fidelity
- Guideline 7. Form a mutual partnership between subject matter experts and learning experts
- Guideline 8. Ensure that the training program worked

Conceptually, simulation training makes sense.

What is the evidence?



There is limited but growing evidence that simulation training can translate to improved overall patient care.

This limitation is due to:

- Relatively new focus on simulation as an educational tool.
- Many of the important questions in SBE and assessment cannot be answered by traditional randomized controlled trials.

Simulation Based Education: What is the Value?



- Must consider costs of: Simulator, faculty time, training expenses, facility fees, opportunity cost
- Cost reporting is infrequent and incomplete- No study has offered a complete accounting of simulation costs
- **More expensive simulators are not necessarily better**
Low-fidelity, low-cost training models can yield outcomes equal to much more expensive simulators

- Zendejas B et al. Cost: the missing outcome in simulation-based medical education research: a systematic review. *Surgery*. 2013;153:160-176.
- Norman G et al. The minimal relationship between simulation fidelity and transfer of learning. *Med Educ*. 2012;46:636-647.



ADVANTAGES

- ✓ No threat to patient safety
- ✓ High degree of realism
- ✓ Low educator/learner ratio
- ✓ Active involvement of learner
- ✓ Consistent experience for all students
- ✓ Creates a standardized setting for enhancing critical-thinking, problem-solving, and decision making skills
- ✓ Practice communication with multidisciplinary team members
- ✓ Psychomotor skills can be applied and refined

DISADVANTAGES

- Resource intensive
- High staffing ratio
- Anxiety of learner interferes with performance
- Learner's disbelieving attitude or hypervigilance
- Lack of comfort with simulator as teaching strategy for educators
- No clear validation of transfer of learning to clinical setting



Ideal areas for SBE

- Technical Skills - common and uncommon
- Physical examination
- Team performance
- History taking skills and Problem-solving

Pitfalls

- Simulation is not « THE » objective
- Unique session of simulation
- Appropriate level of difficulty for the learner
- Technology and high-fidelity ≠ successful learning experience



Conclusion

- Simulation Based Education is important and is here to stay
- To optimize both the learning and assessment experience of simulation, remember:
 - Principles of effective simulation
 - Advantages /Disadvantages of simulation
 - Goals-tools match: most important limitation
- ✓ Get started!



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The Third International Conference on Medical Education

Simulation for Education and Patient Safety

RIDE THE WAVE

March 24, 2017: Hilton Metropolitan Hotel
March 25, 2017: Clinical Simulation Center, Byblos Campus

SAVE THE DATE



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SIMULATION APPLIED TO MEDICINE



SIMGHOSTS

TOPICS

- Simulation and Interprofessional Collaboration
- Simulation and Patient Safety
- Art of Debriefing and Feedback
- Building a Simulation Center
- Use of Standardized Patients
- Hybrid Simulation
- Simulation for Assessment
- Moulage and Makeup
- Technology for Simulation

INTERNATIONAL SPEAKERS

René Amalberti, MD, PhD
Professor of Medicine
Senior Advisor, Patient Safety
Haute Autorité de Santé (HAS), France

Lance Bally
Founder - SIMGHOSTS.org & Healthysimulation.com
Healthcare Simulation Entrepreneur

Peter Dieckmann, PhD
Head of Research
Copenhagen Academy for Medical Education and Simulation (CAMES)
Center for Human Resources
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Past President of the Society in Europe for Simulation Applied to Medicine (SESAM)

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Head of IT department
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HIGHLIGHT: HANDS-ON EXPERIENCE THROUGH WORKSHOPS

