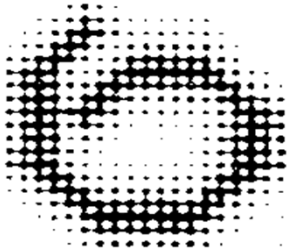
HUMANITAS
RESEARCH HOSPITAL



Società Italiana di Pedagogia Medica
SIPeM

Simulazione come modalità didattica

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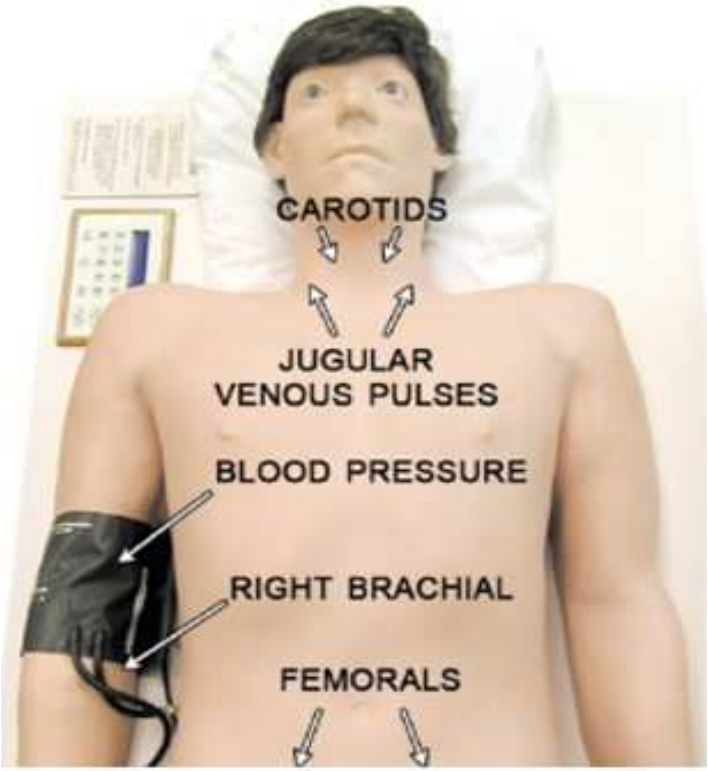
Definizione

La simulazione è un metodo non una tecnologia che permette di sostituire o amplificare la realtà con esperienze guidate che o replicano aspetti del mondo reale in modo interattivo.

Gaba DM Qual Saf Health Care 2004; 13 (Suppl 1): i2-i10.



Venous and Arterial Pulses

Ewy GA et al J Med Edu 1987; 62: 738-43.

Terminologia

- Macrosimulazione: low-medium high fidelity
- Microsimulazione: ragionamento clinico
- Realtà virtuale: basic –enhanced
- Simulazione relazionale: gioco di ruoli, esame clinico tra pari, CRM

Gaba DM Qual Saf Health Care 2004; 13
(Suppl 1): i2-i10.


MicroSim
Inhospital

A)

B)


GLI OCCHI
LA CASSA TORACICA
LE PULSAZIONI ARTERIOSE
GLI ORGANI GENITALI
LA PELLE
IL BATTITO CARDIACO
TORACE
UNA VENA
I POLSI ARTERIOSI
LE PULSAZIONI ARTERIOSE

C)

D)

Perché utilizzare la simulazione

(a) problems with clinical teaching

(b) new technologies for diagnosis and management

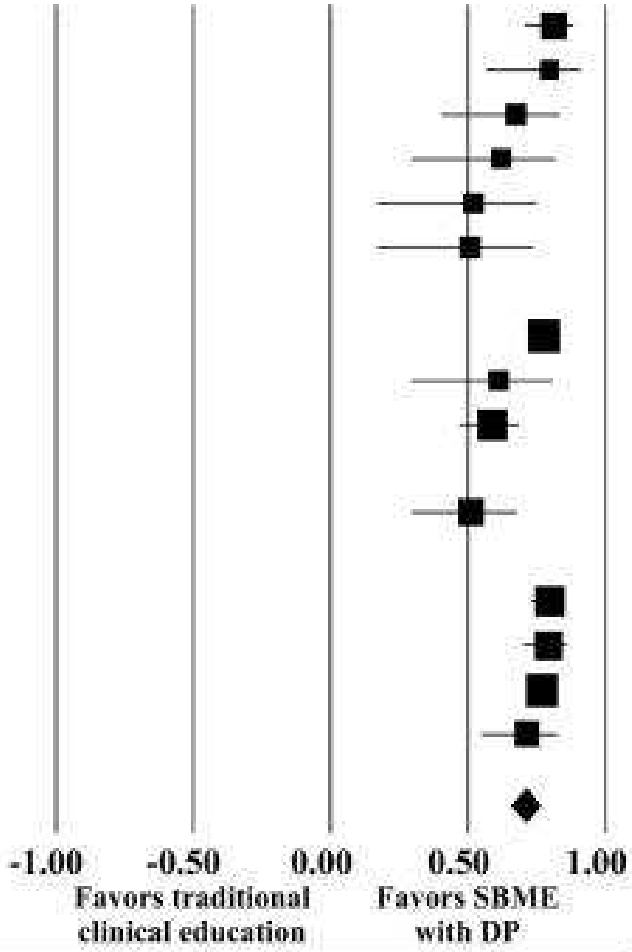
(c) assessing professional competence

(d) medical errors, patient safety and team training

(e) the role of deliberate practice

Issenberg 2005 et al Med Teach 2005; 27:10-28.

Research design and study	Statistics for each study: Correlation	Lower limit	Upper limit	*P*-Value	Correlation and 95% CI
Randomized trials					
1. Wayne et al, 2005[21]	0.81	0.70	0.88	.000	
2. Ahlberg et al, 2007[22]	0.80	0.56	0.91	.000	
3. Andreatta et al, 2006[23]	0.67	0.40	0.84	.000	
4. Korndorffer et al, 2005[24]	0.62	0.29	0.82	.001	
5. Korndorffer et al, 2005[25]	0.52	0.17	0.75	.006	
6. Van Sickle et al, 2008[26]	0.51	0.17	0.74	.005	
Cohort studies					
7. Issenberg et al, 2002[27]	0.78	0.73	0.82	.000	
8. Barsuk et al, 2009[28]	0.61	0.29	0.81	.001	
9. Butter et al 2010[29]	0.59	0.47	0.69	.000	
Case-control studies					
10. Wayne et al, 2008[30]	0.51	0.29	0.68	.000	
Pre-post baseline studies					
11. Wayne et al, 2008[31]	0.80	0.72	0.86	.000	
12. Barsuk et al, 2009[32]	0.79	0.70	0.86	.000	
13. Barsuk et al, 2009[33]	0.77	0.71	0.82	.000	
14. Stefanidis et al, 2006[34]	0.71	0.55	0.83	.000	
Overall effect size	0.71	0.65	0.76	.000	



Mc Gaghie et al Acad med 2011; 86: 706-711

Obiettivi di apprendimento

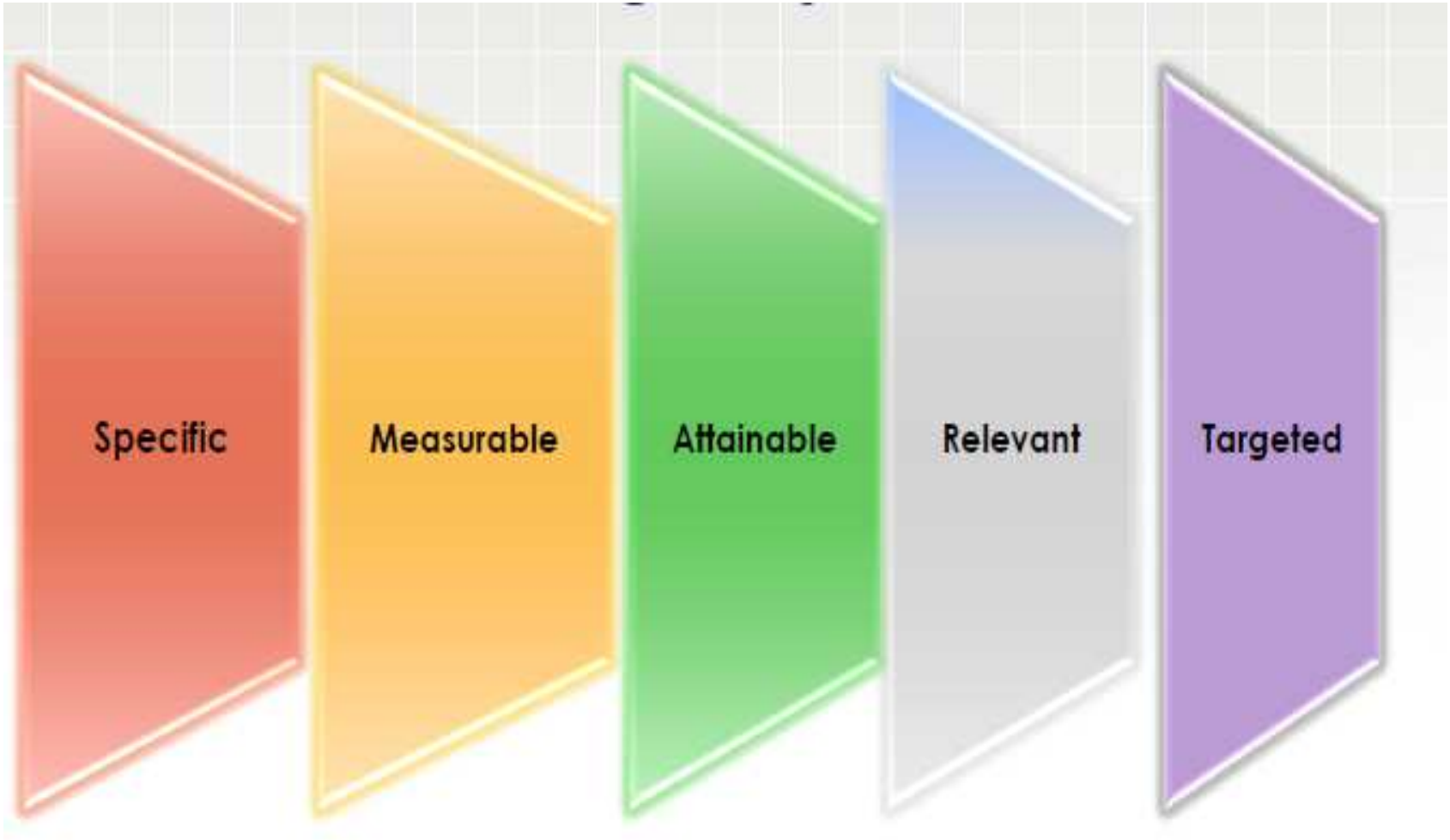
Box 1. Example: Emergency medicine residency curriculum.

Binstadt et al. integrated simulation into a redesigned four-year emergency medicine residency curriculum (Binstadt et al. 2007). Their approach combined adult learning principles, medical simulation education theory, and standardized national curriculum requirements. They designed a complete set of simulation-based teaching modules covering emergency medicine, and integrated them into the Harvard-Affiliated Emergency Medicine Residency (HAEMR) curriculum.

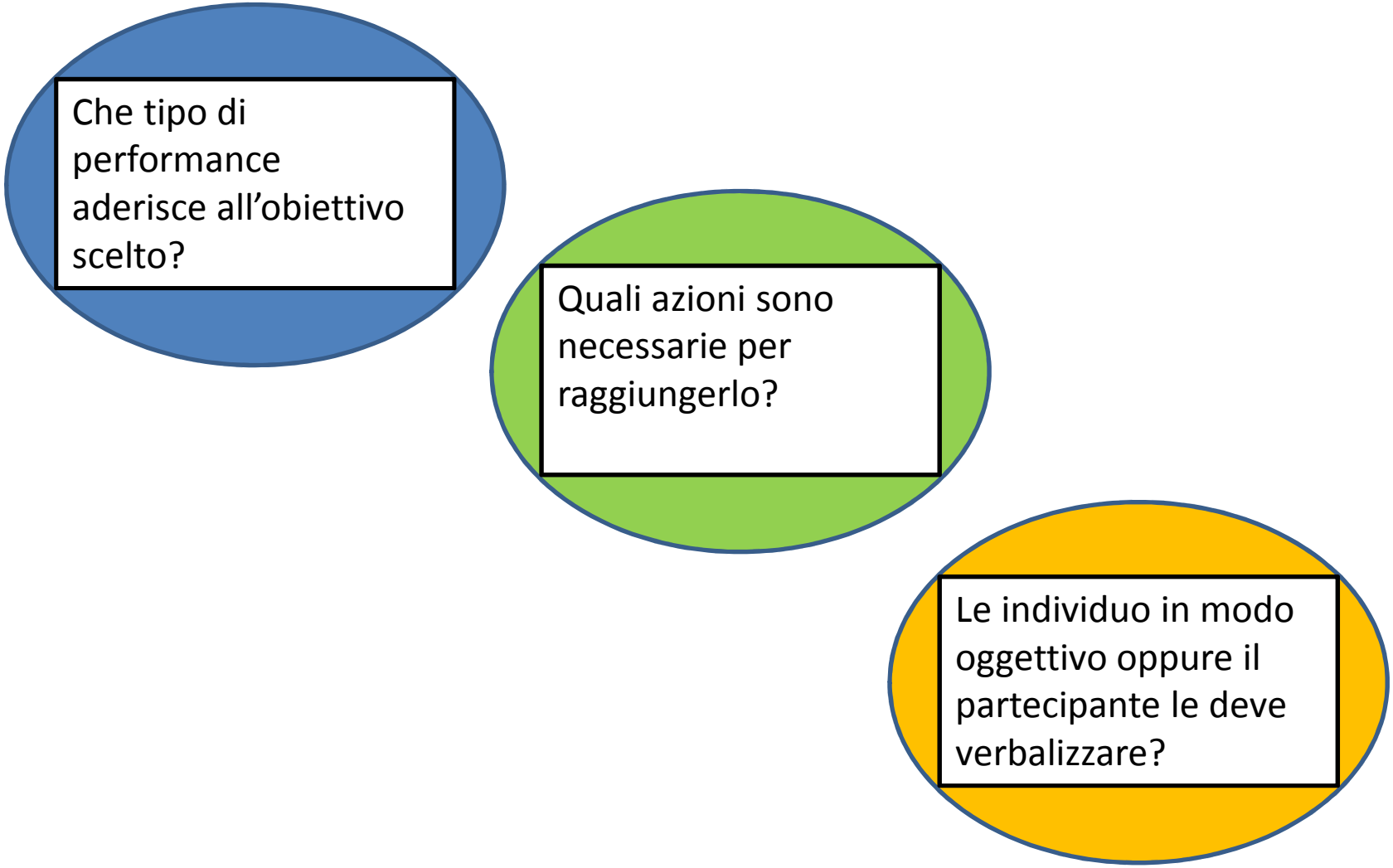
They began by creating a comprehensive list of learning objectives mapping to the core content within each of the educational modules that needed to be covered. Next, a panel of experts from the residency program and the simulation center determined the best teaching methodology for each learning objective. Their teaching methodologies included large-group lecture, small-group seminar, self-directed learning or reading, partial-task simulation training, human patient simulation, and clinical teaching in the emergency department. Once they identified the modules with a strong simulation component, they developed "courses" focusing on a specific set of learning objectives. The courses were three hours long and the residents were divided into two groups based on residency year. Faculty members received objectives relevant to the topic area, a list of available resources and capabilities of the simulation center, and a template for designing the overall session and individual components.

Mottola I. 2013; 35; e1511-e1530, Medical Teacher

Obiettivi di apprendimento



Obiettivi di apprendimento



Obiettivi di apprendimento

Rilevazione della pressione arteriosa

A paziente disteso o seduto da qualche minuto, scopre il braccio

Chiede al paziente di poggiare l'avambraccio sul tavolo o lungo il corpo, comunque il modo che il braccio sia all'altezza del cuore

Si assicura che gli indumenti non esercitino compressioni sul braccio

Avvolge il manicotto intorno al braccio, in modo che sia aderente ma non troppo stretto, mantenendo il margine inferiore del manicotto circa 5 cm al di sopra della piega del gomito

Controlla che il mercurio nella colonnina sia a 0 mm Hg prima di gonfiare il manicotto

Sistema il fonendoscopio all'altezza della piega del gomito sul decorso dell'arteria brachiale, inferiormente al margine del manicotto e insuffla il manicotto a 20 mm Hg rispetto alla rilevazione della scomparsa del polso brachiale

Rileva la pressione sistolica in concomitanza della comparsa del I tono di Korotkoff

Rileva la pressione diastolica in concomitanza del IV tono di Korotkoff

Valuta il polso brachiale bilateralmente e se ci sono differenze esegue la misurazione della pressione arteriosa su entrambe le braccia

Organizzazione attività cliniche studenti III anno

III anno

- *scenario per 54 studenti*
- *27 mattine 2015-*
- *obiettivi: anamnesi tradizionale + semeiotica di base normale e patologico+discussione di casi clinici legati ai system disease+refertazione ECG ed EGA+radiologia*

CLERKSHIP
(25 studenti)

- attività in reparto
- assegnazione a un tutor (max 1:2)

AMBULATORI
(25 studenti)

- affiancamento in ambulatorio senza impatto sulle attività
- 15 min. di briefing prima e dopo gli ambulatori
- possibilità di visitare i casi più interessanti (es. reperti patologici)
- discussione di casi reali o virtuali in laboratori dedicati (con senior consultant)

SIMULATION LAB
(25 studenti)

- 3 sottogruppi che si alternano in stazioni dedicate: anamnesi, esame obiettivo normale e patologico, ECG + EGA + radiologia

Background dei partecipanti

Box 11. Example: Cardiac bedside skills.

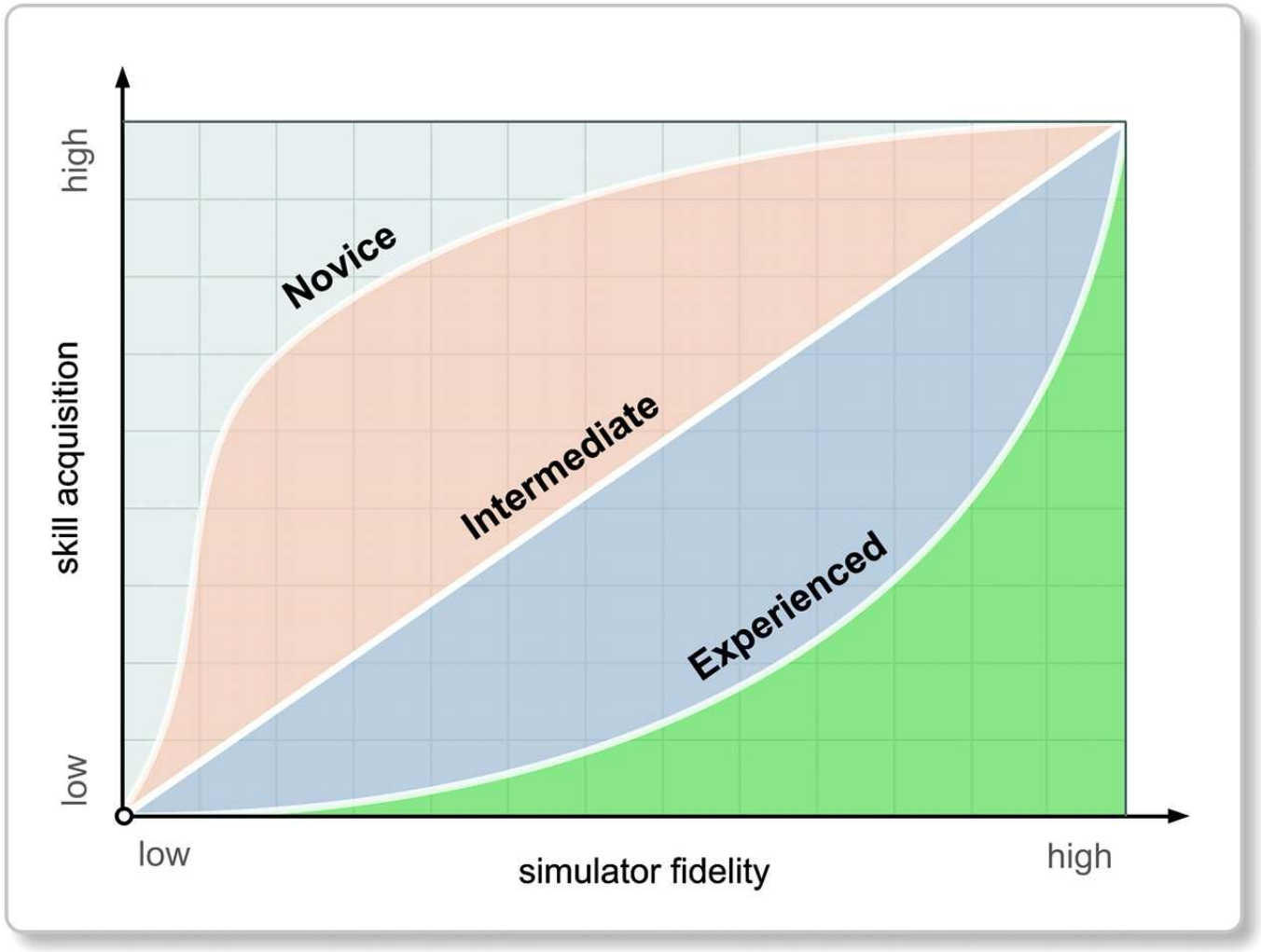
The University of Miami developed a multi-year cardiac bedside skill curriculum in which the difficulty of each task increases with each stage of training.

Cardiac Finding: A simulator presents a fourth heart sound at the apex.

Level	Population	Tasks	Example
1	1st year medical student	Identify finding	"I hear a fourth heart sound."
2	2nd year medical student	Correlate finding with underlying patho-physiology	"This fourth heart sound is caused by an increased after-load on the left ventricle."
3	3rd year medical student	Generate a differential diagnosis	"Possible causes are aortic stenosis, hypertension, etc."
4	2nd year internal medicine resident	Make a management decision	"Order an EKG, consult a specialist, and initiate medical therapy."

Motola I et al Medical Teacher 2013; 35: e1511-e1530

Background dei partecipanti



Rajesh Aggarwal et al. Qual Saf Health Care 2010;19:i34-i43

Players

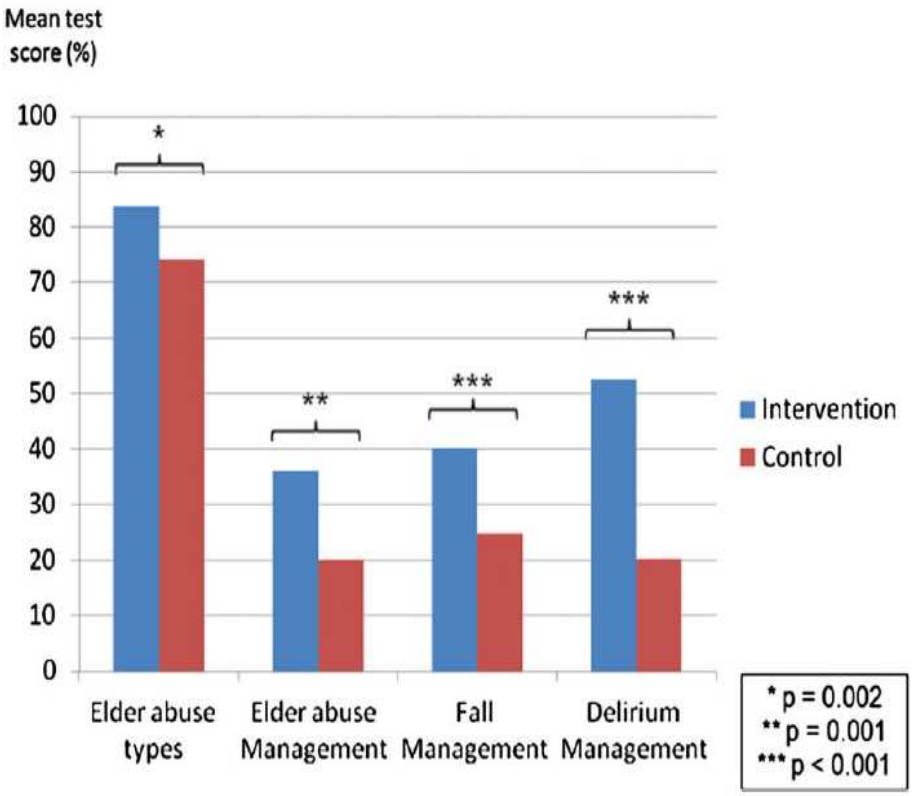


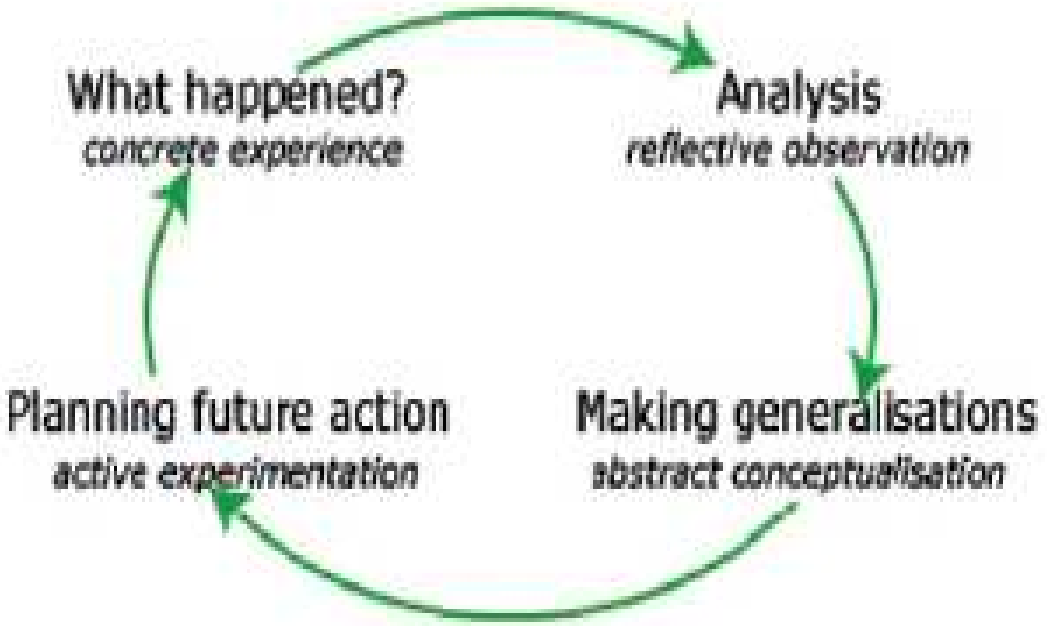
Figure 2. The mean test scores for each question (%) on assessment during the final week of the CIDR module for both simulation and control groups.

Age and Ageing 2013; **43:** 424–428

Setting

International Meeting on
Medical
Simulation, 2014

Setting



Sandars J 2009; 31; 685-695, Medical Teacher

Setting

Organizzazione scenario

- Caso
- Paziente
- Definizione dei diversi stati in dettaglio
- Identificazione dei trigger
- Definizione della progressione da uno stato all'altro
- Valutazione
- Debriefing
- Messa a punto

Khan K et al Medical Teacher 2010 AMEE guide No.50

Valutazione

Category	Element	*Rating	Observation on Performance	Category rating and debriefing notes
Task Management	Planning & preparing			
	Prioritising			
	Providing & maintaining standards			
	Identifying & utilising resources			
Team Working	Co-ordinating activities with team			
	Exchanging information			
	Using authority & assertiveness			
	Assessing capabilities			
	Supporting others			
Situation Awareness	Gathering information			
	Recognising & understanding			
	Anticipating			
Decision Making	Identifying options			
	Balancing risks & selecting options			
	Re-evaluating			

The template

Scenario name: Chest Tube Management
Date submitted: 11/11/2010
Submitted by: Cline, Wolff, Taibi
Institution: UW Seattle
Target audience: Undergrad ☑ Grad ☐ Other: Nurse Educators
Goal/Purpose: To practice basic management and troubleshooting with a chest tube.

Student Preparation

Pre-requisite knowledge/activities:

Knowledge of pulmonary physiology related to chest tubes.
Knowledge of chest tube management including potential problems and interventions.
Understanding of how a water-seal chest tube works.

The template

Learning Objectives

Learner will be able to:

1. identify 2 anatomical positions for CT placement and indication for each.
2. understand the equipment and preparation needed for insertion, maintenance, and removal; including understanding the different types of systems.
3. identify complications that may arise in a patient with a CT and apply a nursing intervention for each.
4. apply knowledge listed above and assessment skills pertinent to a CT in a simulation scenario.

Lab Set-up

Patient simulator/Task trainer: SimMan 3G

Patient characteristics: 65 y/o man, gray hair, dressed in patient gown.

Vital parameters, beginning: T 37.1 C, HR 95, RR 22, BP 146/88, O2 Sat 88% on RA.

Environment/setting/location: General Medicine inpatient unit

Lab staff needed day of simulation: Simulator Technician

Equipment, supplies & prop list: Chest tube (dual chamber waterseal) - kinked under leg,

CT dressing (Vaseline gauze, split 4x4 dressings, tape); oxygen set-up (regulator); nasal cannula on the patient, gauze taped at HOB, grey man's wig if available. Spray bottle (diaphoresis).

The template

Clinical Case Information

Case description/Patient history (HPI, PMH, Social Hx, FH):

HPI: Mr. Josiah Jones, a 65 yo admitted 2 days ago with pleural effusion. A chest tube was placed in the lower right pleural space shortly after admission. O2 sats have been >90% on 2L/NC O2. A&Ox3, vital signs stable, no complaints and slept all night, sister spent the night. Chest tube system was converted to from low wall suction to waterseal last evening and has been functioning appropriately. CT dressing was changed yesterday at 8 pm (dressing slid off when patient was bathing at sink). Smoking cessation teaching has not been started.
PMH: Recent pneumonia, HTN, Anxiety, COPD.
Social History: Smoker (1pack/day for 50 years). Lives with wife and is normally independent with ADLs. His older sister has been helping wife by staying overnight.

Medications and Allergies (MAR):

Allergies: NKDA

Current Medications: (1) Albuterol and Atrovent HHN Q4h and Q1h prn, (2) Captopril PO 25mg QD, (3) Lasix 20mg PO QD, (4) Potassium 20mEq PO QD, (5) Ampicillin 1gm IV QD

The template

Actor Roles and Behavior Overview

Actor/Role – Brief overview of behavior during scenario

1. Patient (voice) - anxious, short of breath, uncomfortable, but downplays symptoms a little.
2. Outgoing nurse - gives report
2. Incoming nurse - listens to morning shift report (it is 7:30 am), goes to assess the patient, performs primary management of the patient's condition.
3. Nursing Assistant - obtains morning vital signs, asks the nurse if he/she needs help.
4. Older sister - spent the night. Wonders why he is getting worse. Is of the opinion he probably shouldn't have been walking.

Scenario Events and Expected Actions

Events in chronological order – Expected actions

1. Nurse receives report from previous shift - notes patient status.
2. Nurse goes into room to check on the patient and he is anxious, SOB, uncomfortable, diaphoretic. He downplays the symptoms - "I probably just wore myself out walking." Nursing assistant (CNA) enters, takes VS: HR 95, BP 146/88, Sat% 88 % on RA, RR 22. Breath sounds diminished LLL, absent RLL. Nurse begins to look for source of problem (chest tube is kinked under leg and nasal cannula is off).
3. If the nurse does not recognize both problems, patient deteriorates:
4. Nurse identifies kinked chest tube - unkinks tube and assures proper functioning.
5. Nurse reassesses patient. VS: HR 100, BP 150/88, Sat% 90% if on O2 (87% if not on O2), RR 22 (CNA may continue to assist with VS). Breath sounds unchanged if CT still kinked. BS diminished bases bilat if CT unkinked.
6. Once chest tube unkinked - patient vital signs return to normal and patient is breathing easier. VS HR 80, BP 140/88, Sat% 90% on 2 LNC O2, RR 18. Breath sounds diminished at bases bilat.
7. Nurse addresses sister's concerns.

The template

Debriefing Points

1. What interventions were effective? (What went well?)
2. Did you have the knowledge and skills to care for this patient's problems?
3. During the scenario, when was communication most important?
4. What would you do differently next time?
5. What did you learn new from the case?

Elkin, Perry, & Potter, (2007). Nursing Interventions & Clinical Skills: 4th Edition. St. Louis, Missouri: Mosby, Inc. pp. 684-690.

Dev SP, Nascimento B Jr, Simone C, Chien V. N (2007) Chest Tube Insertion. Engl J Med 357(15).

Step per introdurre simulazione all'interno del curriculum