BENVENUTI in

FASiM

UNIVERSITAS STUDIORUM MUTINENSIS ET REGIENSIS
1175

UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA

孔子

Confucius

Chinese Philosopher (551 Bc - 479 Bc)

I Hear And I Forget.

I See And I Remember.

I Do And I Understand.

WHAT'S SIMULATION IN MEDICINE

Medical simulation is

@ cross-disciplinary realistic training and feedback method

@ learners can repeatedly practice and review tasks and processes in lifelike circumstances

@ using physical or virtual reality models, from low to high fidelity.

@ used to develop maintain and improve skills of health care providers

@ without harming patients

SIMULATION IN MEDICINE: BENEFITS

Teoria dell' apprendimento nell' adulto: Ciclo di Kolb

Esperienza Concreta

Osservazione Riflessiva

Concettualizzazione Astratta

Sperimentazione Attiva

Simulazione

HYSTORY OF SIMULATION IN MEDICINE

@ Evidence suggests that **Egyptian surgeon priests may have simulated surgical procedures (such as rhinoplasty)** on cadavers around 2000 BC.

@ One of the **first recorded use of a medical simulator** was a manikin created in the 17th Century by a Dr Gregoire of Paris . He used a **pelvis with skin stretched across**

@ In 1739, Smellie created his own female models out of a **real pelvis, with ligaments, muscles, skin, artificial materials, and cloth dolls to simulate the fetus.** He shifted levers to imitate the actions of the maternal abdomen and the womb was represented

HYSTORY OF SIMULATION IN MEDICINE

The history of simulation in medical education and possible future directions

PAUL BRADLEY

*Medical Education 2006; **40**: 254–262*

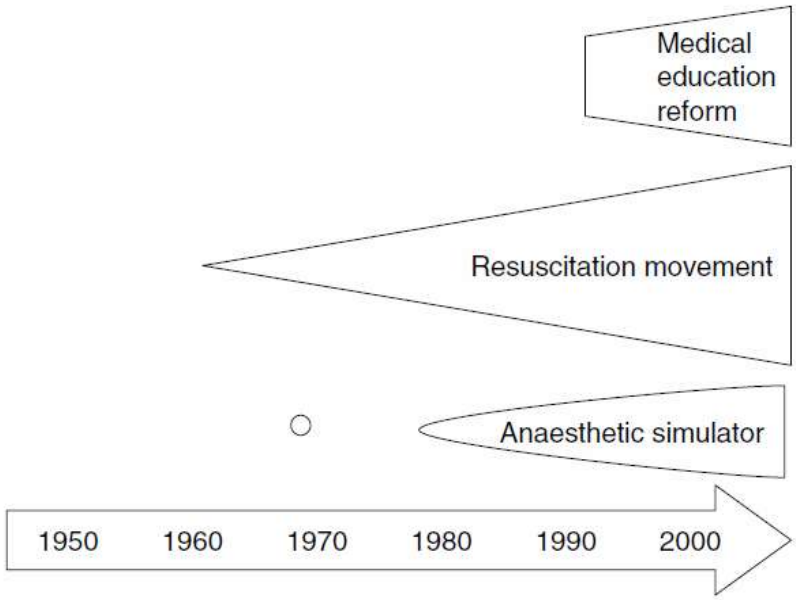


Figure 1 The major movements of the late 20th century driving the adoption of simulation

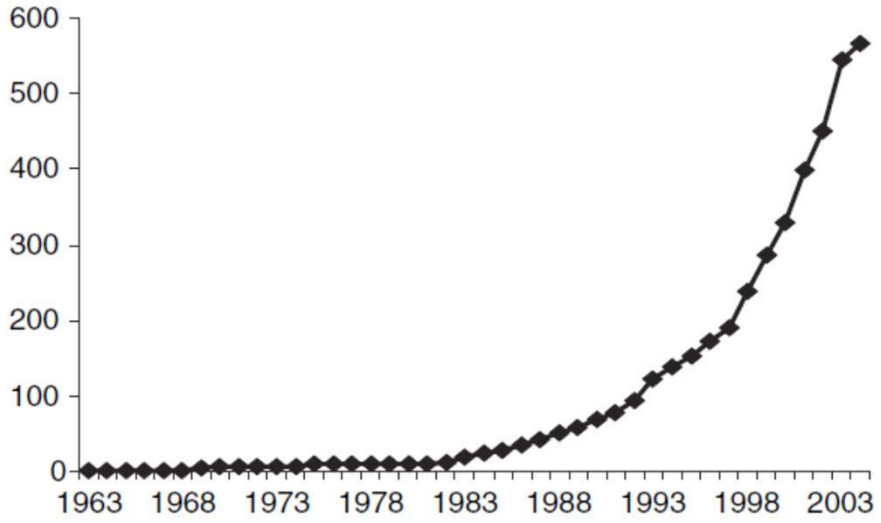


Figure 3 Cumulative growth in simulation literature (Source: Boston Simulation Centre)

AVIATION & MEDICINE

AVIATION:

@ first flight: 1903

@ first use of simulator: 1909

@ today simulation is mandatory in assessment and accreditation of pilots worldwide.

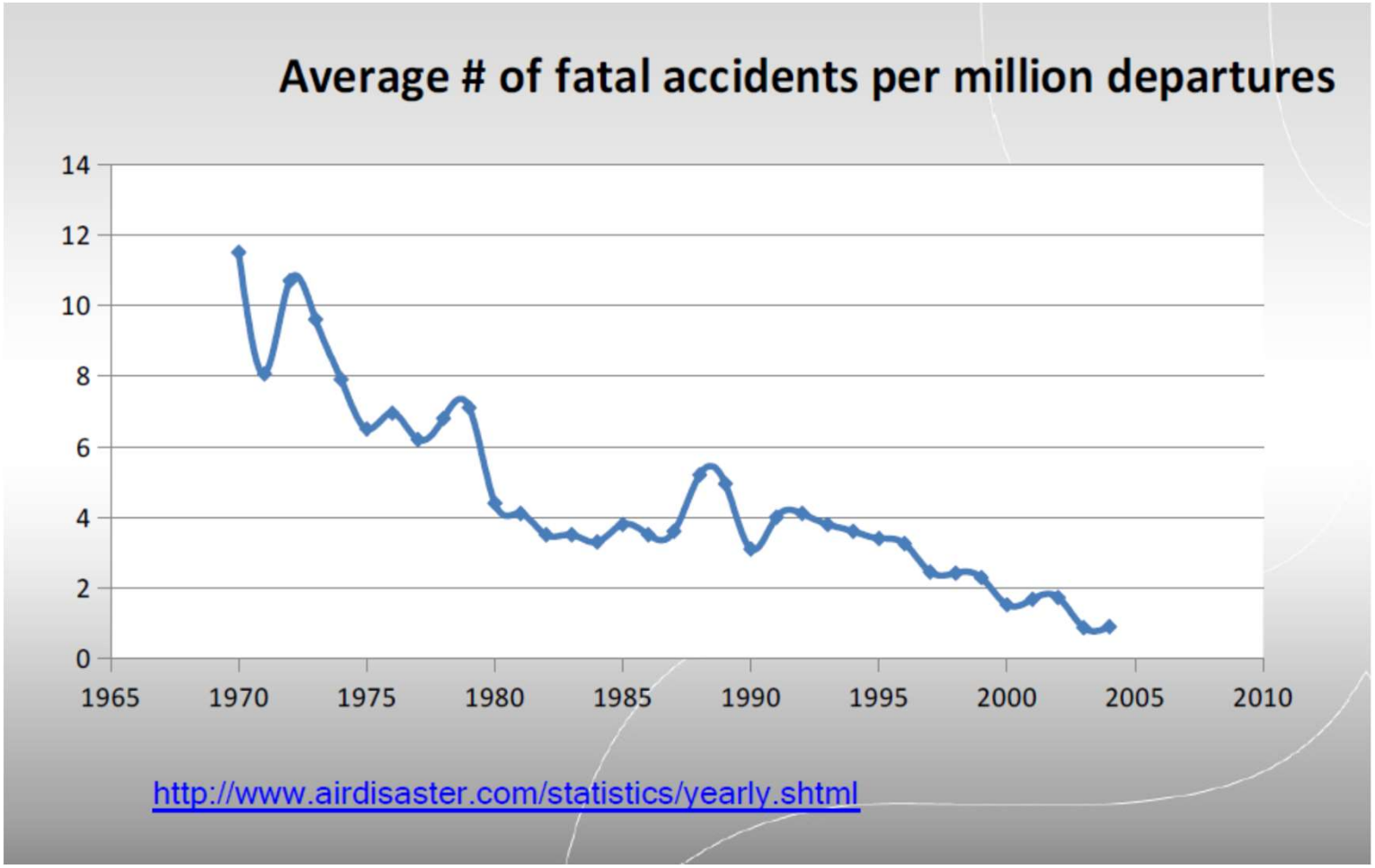
MEDICINE:

@ practice since the dawn of time

@ WHO recommends the use of simulation in medical education: 2009.

AVIATION & MEDICINE

The airline industry's remarkable improvement in safety over the past 50 years is attributed to widespread adoption of simulation training & implementation of state-of-the-art safety and error reduction programs.



AVIATION & MEDICINE

SIMILARITIES

@ High-risk & high-tech industries
@ Low tolerance to errors
@ Should have lower tolerance to not learning from errors
@ Diverse skills and personality characteristics required
@ Concurrent task demands and high information load
@ Extended period of specialized training and high cost to deliver

DEEP CULTURAL DIFFERENCES

@ Admission and preliminary screening
@ Assessment and safety
@ Reporting and debriefing
@ Training and certification
@ Mandatory post-licensing education vs. CME
@ Fragmented safety regulatory environment
@ Risk of fatality to passengers and self Vs. single patient

AVIATION & MEDICINE

Error, stress, and teamwork in medicine and aviation: cross sectional surveys

BMJ 2000;320:745–9

J Bryan Sexton, Eric J Thomas, Robert L Helmreich

@ 30000 cockpit members and 1033 operating room & ICU personnel (12 medical institutions in USA and Europe)

@ Medical staff more likely than cockpit crew to deny the effect of fatigue on their performance (70% vs 26%)

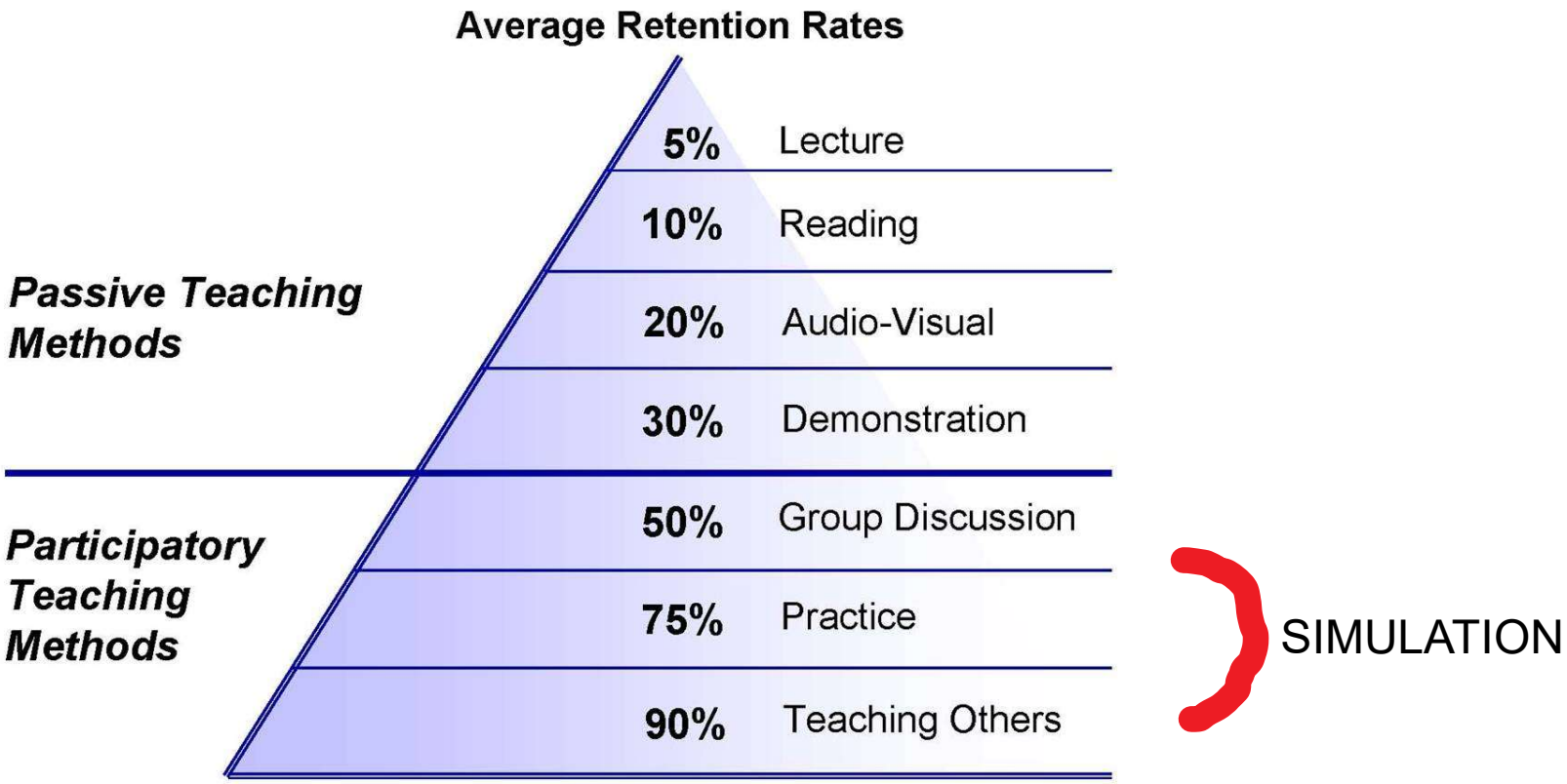
@ 97% of crew members advocated flat hierarchies vs. 55% of surgeons

@ 100% crew personnel acknowledged the make mistake vs. 30% of medics

@ 100% crew found it easy to discuss/report mistakes vs. 56% of medics

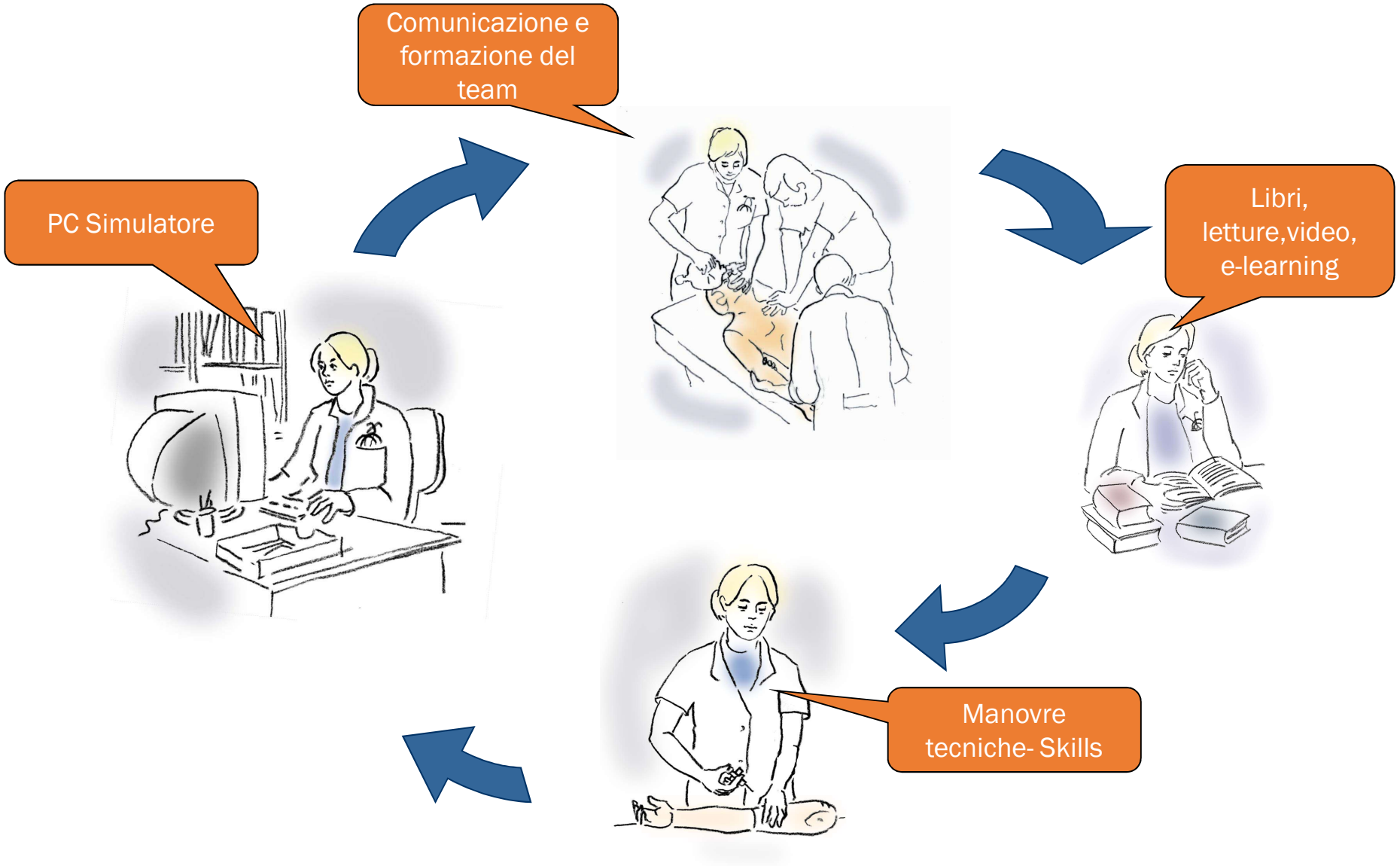
SIMULATION IN MEDICINE: BENEFITS

The Learning Pyramid*



*Adapted from National Training Laboratories. Bethel, Maine

Il ciclo della formazione



SIMULATION IN MEDICINE: BENEFITS

The history of simulation in medical education and possible future directions

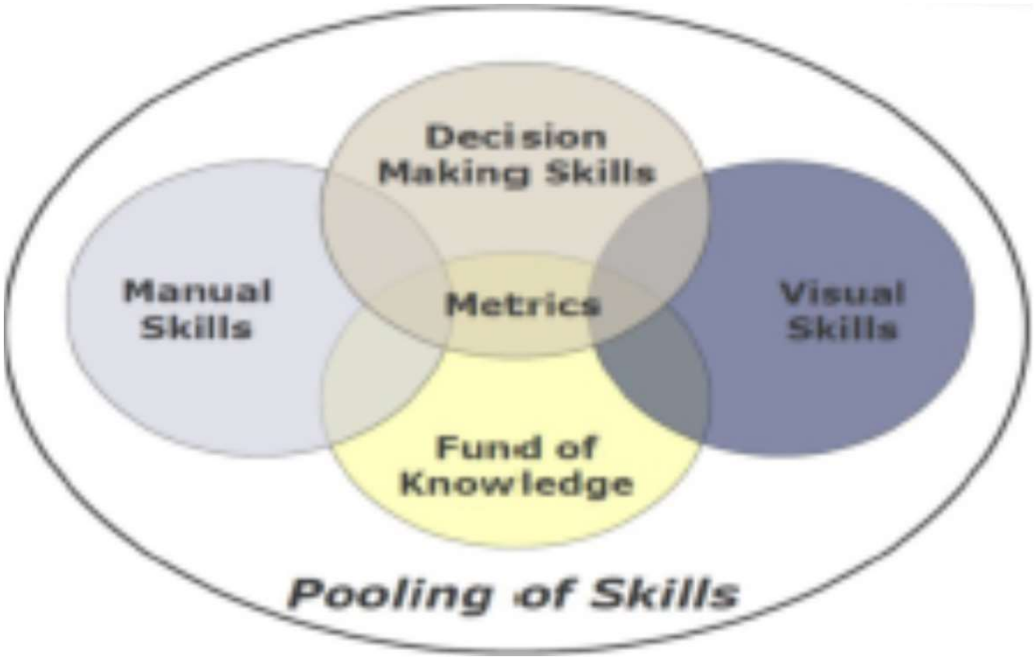
PAUL BRADLEY

Medical Education 2006; **40**: 254–262

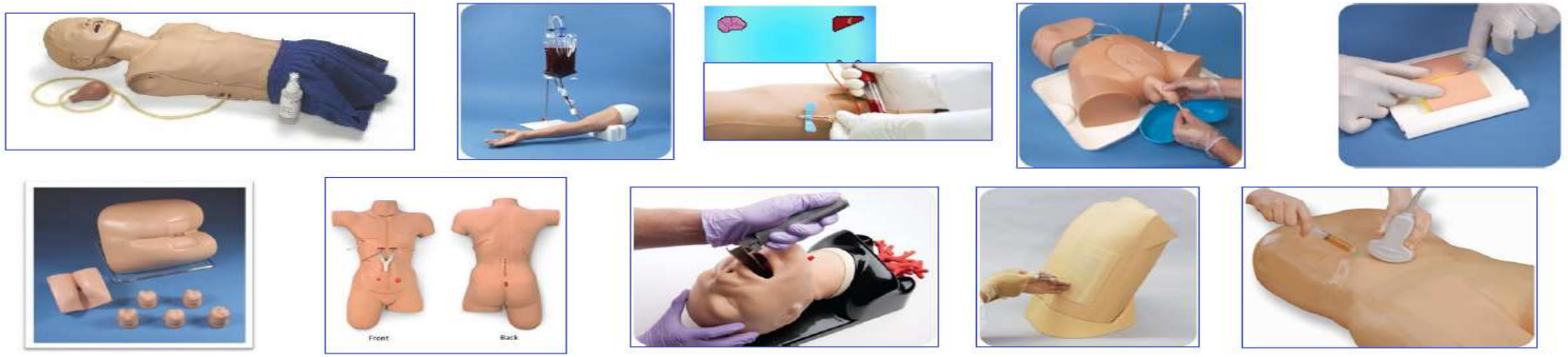
Table 3 The benefits of simulation[36]

Risks to patients and learners are avoided
Undesired interference is reduced
Tasks/scenarios can be created to demand
Skills can be practised repeatedly
Training can be tailored to individuals
Retention and accuracy are increased
Transfer of training from classroom to real situation is enhanced
Standards against which to evaluate student performance and diagnose educational needs are enhanced

SIMULATION IN MEDICINE: DEGREE EDUCATION



Task trainers

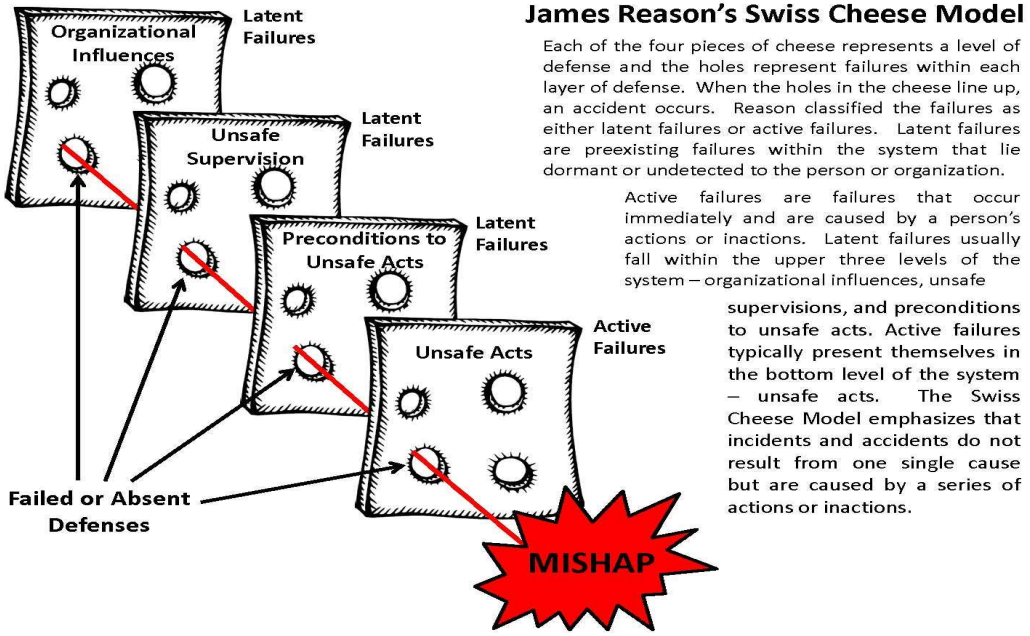


SIMULATION IN MEDICINE
POST-DEGREE: ERRORS in MEDICINE

US:

@ 210,000 and 440,000 patients each year who go to the hospital for care suffer some type of preventable harm that contributes to their death

@ medical errors are the 3rd medical death cause, preceded only by heart disease and cancer



James Reason's Swiss Cheese Model

Each of the four pieces of cheese represents a level of defense and the holes represent failures within each layer of defense. When the holes in the cheese line up, an accident occurs. Reason classified the failures as either latent failures or active failures. Latent failures are preexisting failures within the system that lie dormant or undetected to the person or organization.

Active failures are failures that occur immediately and are caused by a person's actions or inactions. Latent failures usually fall within the upper three levels of the system – organizational influences, unsafe supervisions, and preconditions to unsafe acts. Active failures typically present themselves in the bottom level of the system – unsafe acts. The Swiss Cheese Model emphasizes that incidents and accidents do not result from one single cause but are caused by a series of actions or inactions.

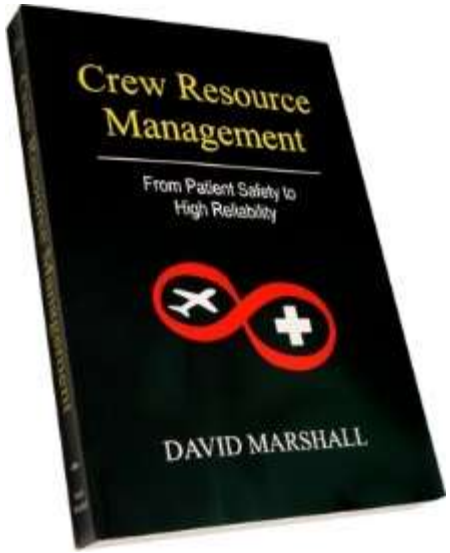
SIMULATION IN MEDICINE
POST-DEGREE: ERRORS in MEDICINE

SIMULATION IN MEDICINE POST-DEGREE

CREW (CRISIS) RESOURCE MANAGEMENT

Rall and Gaba (2005) have identified the followed 15 key principles:

1. Know the environment
2. Anticipate and plan
3. Call for help early
4. Exercise leadership and followership
5. Distribute the workload – monitor and support team members
6. Mobilise all available resources
7. Communicate effectively
8. Use all available information
9. Prevent and manage fixation errors
10. Cross (double) check
11. Use cognitive aids
12. Re-evaluate repeatedly
13. Use good teamwork
14. Allocate attention wisely – avoid fixation
15. Set priorities dynamically



What Went Right

Lessons for the Intensivist From the Crew of US Airways Flight 1549

(CHEST 2009; 136:910–917)

Lewis A. Eisen, MD, FCCP; and Richard H. Savel, MD

Table 3—*Critical Steps for Dealing With an Emergency Based on CRM, Using the Examples of Flight 1549 and an Idealized Response to a Cardiac Arrest*

Steps	Flight 1549	Cardiac Arrest
Identify an emergency	"Hit birds, we lost thrust in both engines"	Responder identifies absence of pulse
Declare an emergency	"Mayday"*	Responder calls a code
Declare leadership role	"My aircraft"	"I am the code leader"
Assume the command position	Sullenberger assumes primary flight control	Code leader positions self at head of bed
Gather necessary equipment	Equipment in cockpit is in optimal standardized position	Get bag valve mask, hook oxygen up to wall, turn on oxygen, set up suction, place intubation tray at head of bed, get code cart
Set the scene	Instruments are ideally placed for ease of use	Drop all side rails, lower bed, push bed away from wall, place backboard under patient
Assign roles and responsibilities	Captain, copilot, and three flight attendants	Code leader, cardiac arrest team, nurses, respiratory therapists
Maintain chain of command	Captain, copilot, three flight attendants	Code leader, cardiac arrest team, nurses, respiratory therapists
Callback orders	Sullenberger, "My aircraft" Skiles, "Your aircraft"	Code leader, "Epinephrine 1 mg IV push" Nurse, "Epinephrine 1 mg IV push given"
Use the command voice	"Brace for impact"	Code leader should speak in clear, authoritative voice
Avoid air commands	"Cactus 1549 New York departure radar contact climb and maintain one five thousand"	Code leader, "Nurse Jones, charge to 200 joules"
Avoid nonpertinent communication	"We're gonna be in the Hudson"	Any conversation not directly related to response to cardiac arrest will impair performance
Monitor team function	Unable to assess from transcript	Code leader, "Slow down, you are bagging too fast"
Accept feedback	Unable to assess from transcript	Nurse, "Doctor Smith, I think that is vtach and we should shock it" Code leader, "I agree, Nurse Jones, charge to 200 joules"

*Cockpit recorder has Sullenberger declaring, "Mayday," but it is not on the air-to-ground communications transcript, possibly due to the button for communication not being pressed at the time.[2]

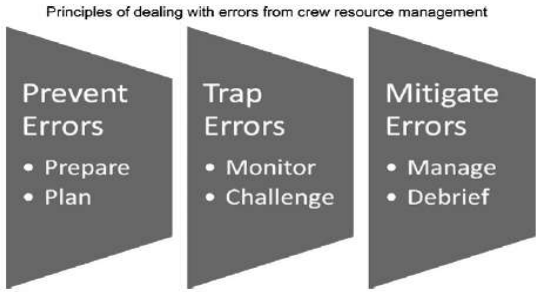


FIGURE 2. CRM principles of dealing with errors.

Table 5—*Institute of Medicine Strategy for Improving Patient Safety*

Establish a national focus to enhance the knowledge base about safety
Develop a mandatory error-reporting system and encourage health-care practitioners to develop and participate in voluntary reporting systems
Raise performance standards through the actions of oversight organizations, professional groups, and group purchasers of health care
Implement safety systems in health-care organizations to ensure safe practices, including simulation

The table was adapted from the Institute of Medicine "To Err is Human."[50]

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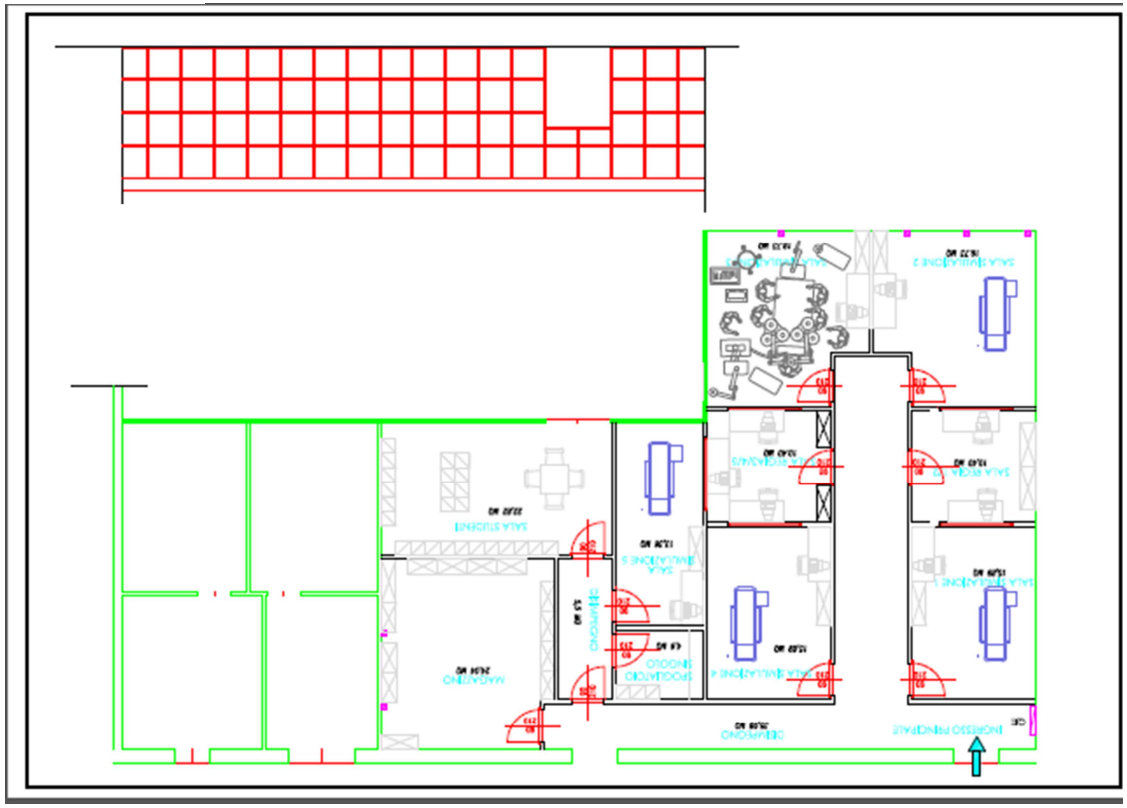

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Tipo/marca
Torso-Collo per inserzione CVC (Adam Roully)
Torso-Collo per inserzone CVC-ECHO Guided (Adam Roully)
Posizionamento PICC
Torso per Drenaggio Toracico / Pericardico
Set Suture e Skin-Pads
Braccio per posizionamenot CVP
Braccio per prelievo arterioso-EGA
Gluteo per Puntura Intra-Muscolo
Palpazione Mammella Indossabile “Strap-ON”
Busto Palpazione Mammella
Mammella per Ago-aspirato
Cateterizzazione Maschile
Cateterizzazione Femminile
Busti per Auscultazione suoni polmonari e cardiaci
Testa-Torace per Sondino naso-gastrico
Esplorazione Rettale e Fecalomi
Esplorazione Rettale ed esame Prostata
Esame Oculare/Fondo dell’ Occhio
Esame Orecchio
Visita Ginecologica ed esame cervice uterina
Busto con cicatrici, ferite chirurgiche e drenaggi
Braccio per suture chirurgiche

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Simulatori Speciali
Simulatore ECOGRAFICO Vauss Sim
Simulatore Videolaparoscopico plexiglass
Simulatore Videolaparoscopico Addome
Simulatore Videolaparoscopio Addome Reale con Organi
Colonna Videolaparoscopica Completa (Ottiche STORLZ, cavi, fonteluce)

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Simulatore Scala Reale
Avanzato Completo “HAL”
Avanzato ACLS “Code-Blue”
Medio Gravida Partoriente
Medio Neonatale
Basic BLS
Basic “Resusci Anne” Completo (laerdal)

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MODENA E REGGIO EMILIA

AND NOW ……

FASiM

ON AIR

La simulazione

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MEDICAL EDUCATION

La macrosimulazione

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MEDICAL EDUCATION

CRM Key Points

Rall M, Gaba DM. Miller, Anesthesia 6th Edition (in press)

- Know the environment
- Anticipate and plan
- Call for help early
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- Use good teamwork
- Allocate attention wisely
- Set priority dynamically

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SimuLearn MEDICAL EDUCATION

La comunicazione è importante:

Pensato

non è detto

Detto

non è sentito

Sentito

non è capito

Capito

non è fatto

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Gli aspetti “pratici” della giornata

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MEDICAL EDUCATION

programma dettagliato

Parte teorica

- ***Lettura:*** **Introduzione agli obiettivi scientifici del Corso e alla metodologia didattica della simulazione**

- ***Lettura:*** **Gestione delle instabilizzazioni acute nel paziente ad alto rischio**

Parte pratica – Sessioni di macrosimulazione

- ***Caso A - role-playing***
  Paziente iperteso con valori pressori elevati poco controllati dalla terapia farmacologica

- ***Caso B - role-playing***
  Paziente con diabete mellito scompensato, polivasculopatico

- ***Caso C - role-playing***
  Paziente con cardiopatia ischemica cronica post-infartuale e disfunzione ventricolare sinistra

- ***Caso D – role-playing***
  Paziente anziano con scompenso cardiaco cronico

Debriefing conclusivo sul lavoro pratico svolto

Test di valutazione finale

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MEDICAL EDUCATION

Caratteristiche da conoscere e ricordare

Respiro spontaneo

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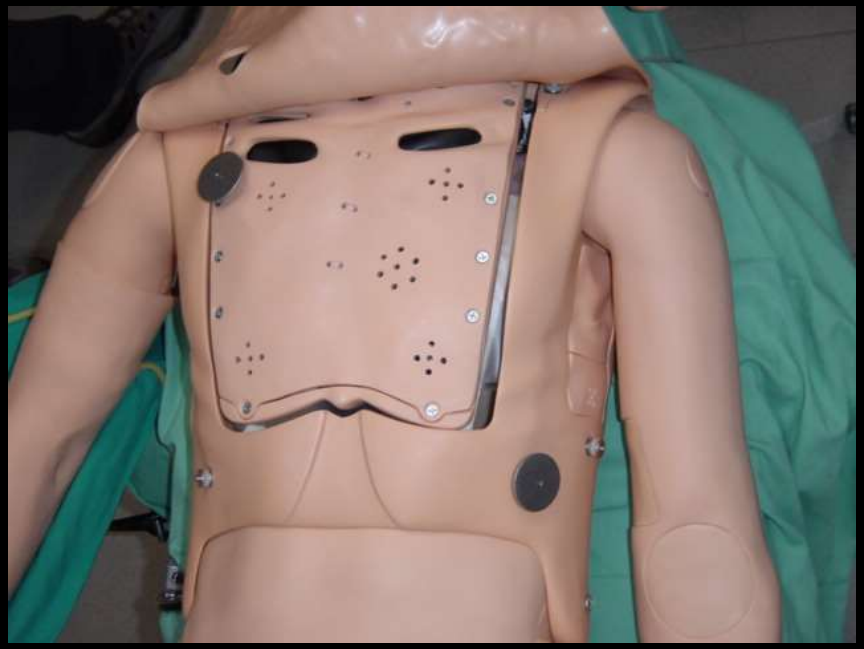
MEDICAL EDUCATION

Caratteristiche da conoscere e ricordare



Auscultazione rumori respiratori

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Caratteristiche da conoscere e ricordare

Valutazione polso

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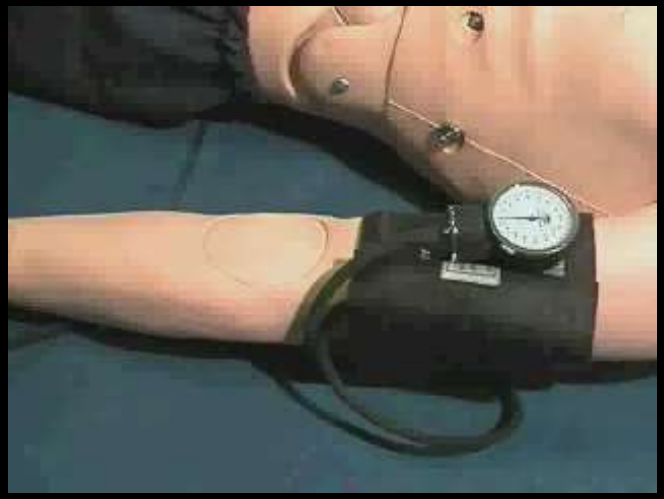
Caratteristiche da conoscere e ricordare



Misura pressione

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MEDICAL EDUCATION

Caratteristiche da conoscere e ricordare

Ventilazione
con maschera

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MEDICAL EDUCATION

Caratteristiche da conoscere e ricordare

Incannulamento
vena periferica

SimuLearn
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Buon lavoro !

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La simulazione

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international
medical
education

La simulazione

Microsimulazione

Macrosimulazione

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La microsimulazione

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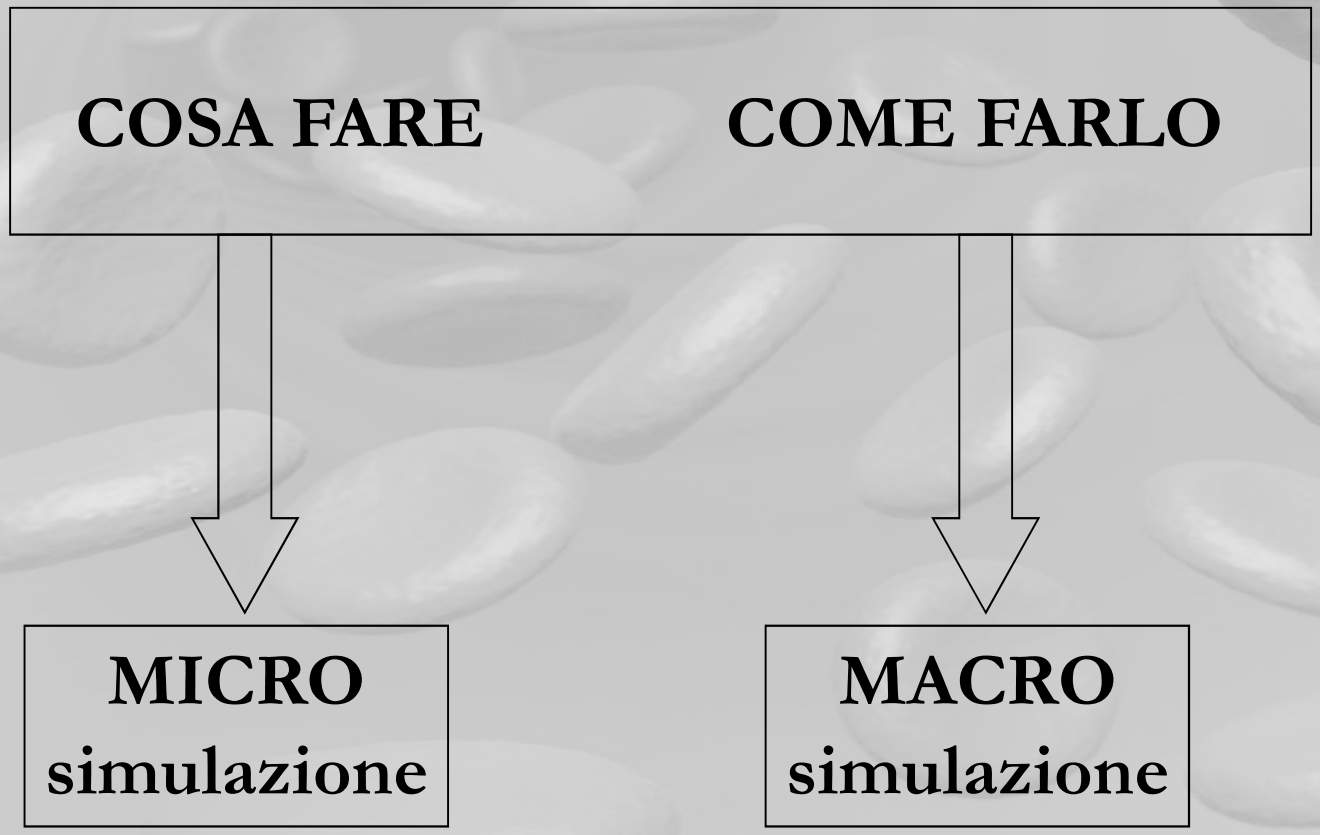
Crisis Resource Management



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CRM Key Points

Rall M, Gaba DM. Miller, Anesthesia 6th Edition (in press)

- Conoscere l'ambiente
- Anticipare e programmare
- Chiedere subito aiuto
- Stabilire chi funge da leader e chi da collaboratore
- Distribuire il carico di lavoro
- Mobilitare tutte le risorse disponibili
- Comunicare in modo efficace
- Utilizzare tutte le informazioni disponibili
- Prevenire e gestire gli errori di fissazione
- Effettuare doppi controlli (controllo incrociato)
- Impiegare gli aiuti cognitivi
- Rivalutare il quadro clinico continuamente
- Creare un buon team di lavoro
- Prestare attenzione alla situazione nel suo insieme
- Stabilire le priorità in modo dinamico

La comunicazione è importante:

Pensato

non è detto

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non è capito

Capito

non è fatto

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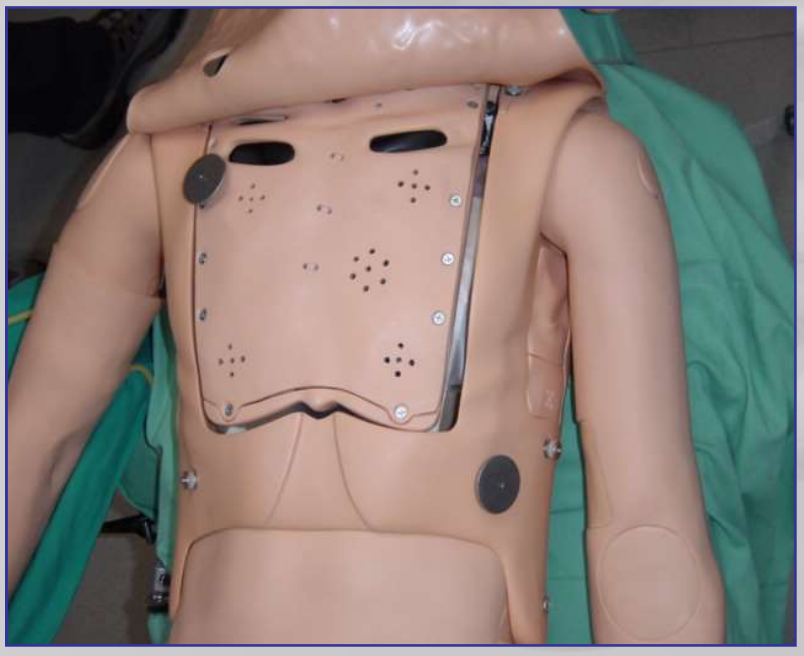
Caratteristiche da conoscere e ricordare

Respiro spontaneo

Caratteristiche da conoscere e ricordare



Auscultazione rumori respiratori

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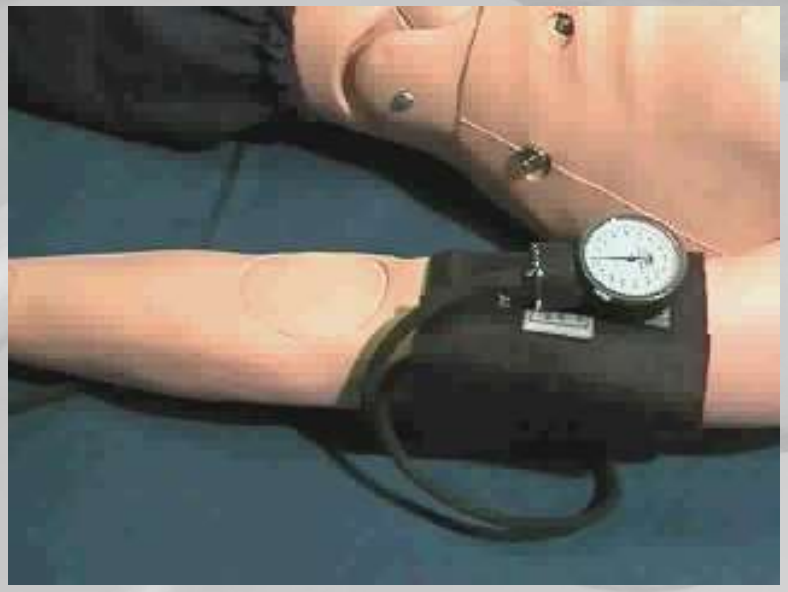
Caratteristiche da conoscere e ricordare

Valutazione polso



Misura pressione

Caratteristiche da conoscere e ricordare

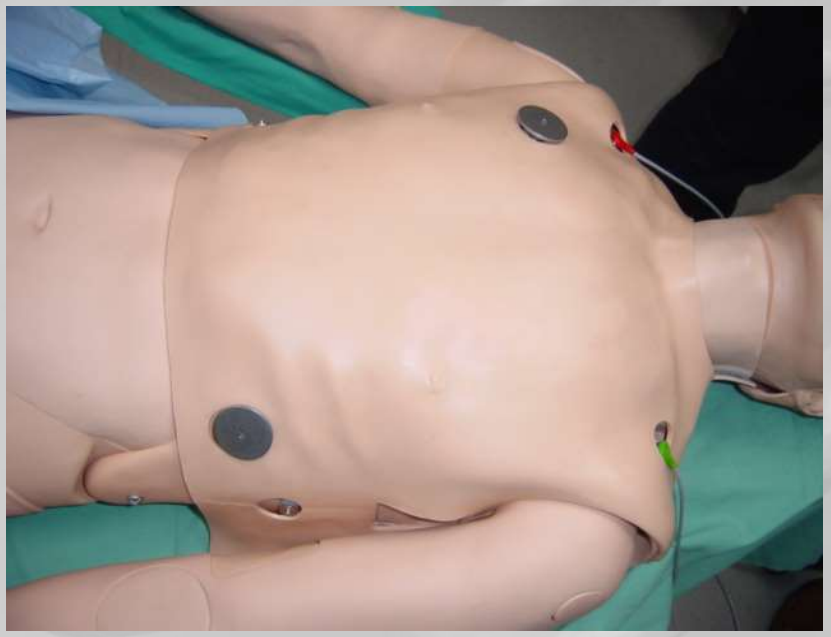
- A scopo didattico compare a monitor la curva di pressione invasiva
- Durante CPR la curva viene influenzata dalle compressioni toraciche
- L'efficacia delle compressioni toraciche può essere valutata a livello carotideo

Caratteristiche da conoscere e ricordare

Ventilazione
con maschera

Incannulamento
vena periferica

Caratteristiche da conoscere e ricordare



Devices per gestione vie aeree

Monitor ECG e defibrillazione

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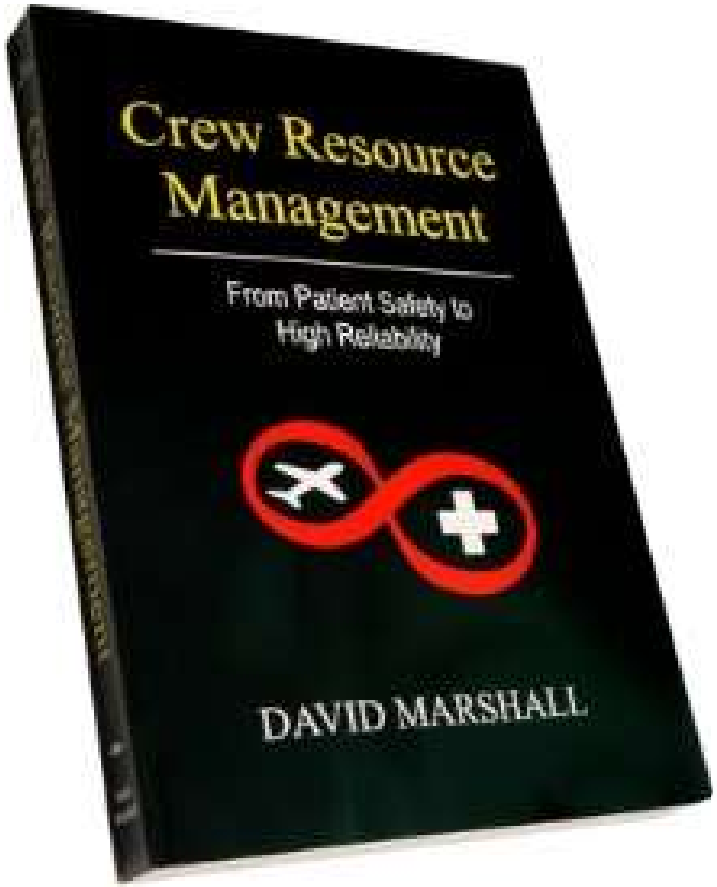
Simulazione Medica Avanzata in ICU

Gestione dell' Emergenze e CRM


Crew Resource Management
From Patient Safety to High Reliability
DAVID MARSHALL

CRM

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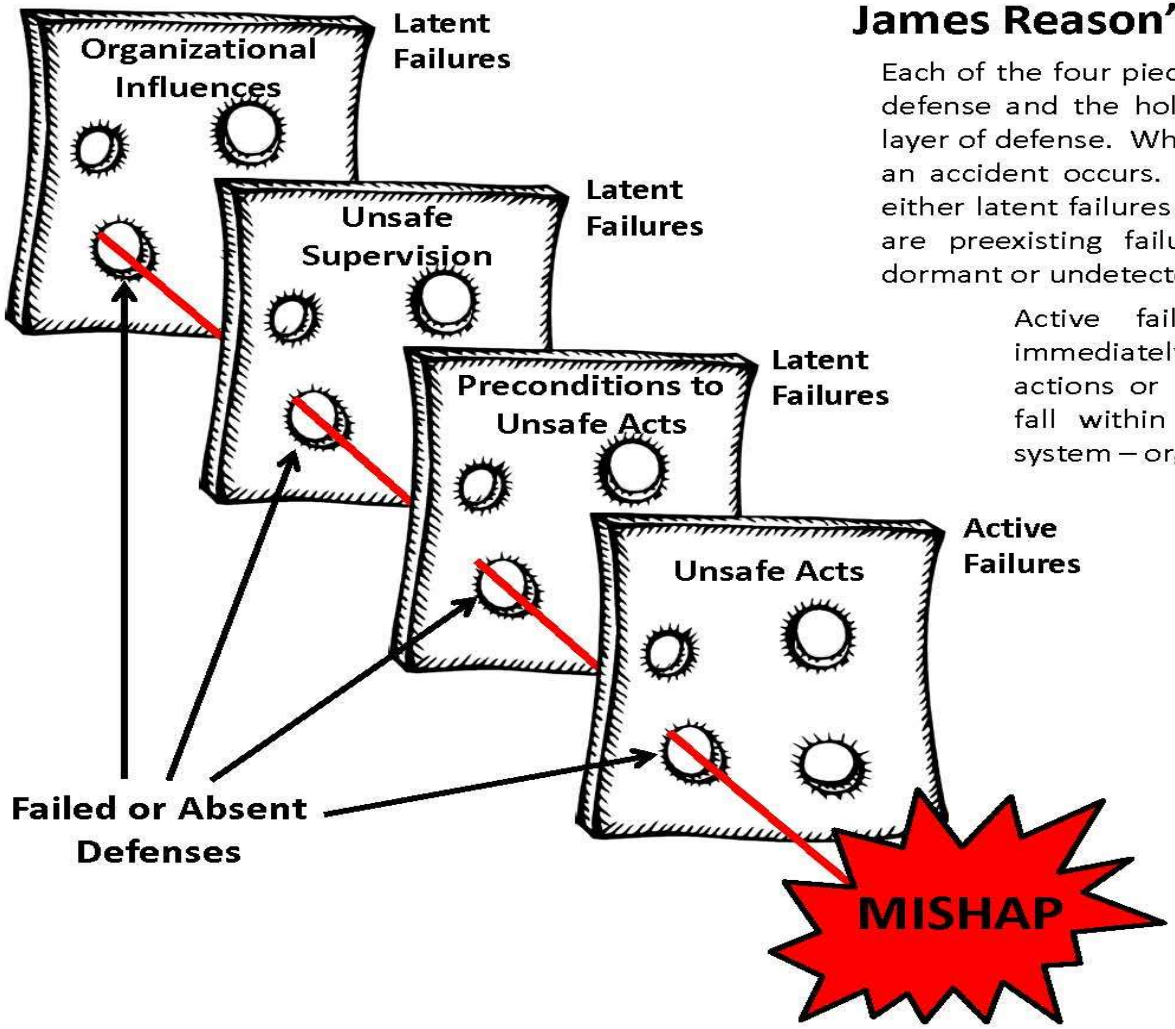
MITIGATE
CONSEQUENCES
OF ERROR
TRAP ERROR
AVOID ERROR

James Reason's Swiss Cheese Model



Each of the four pieces of cheese represents a level of defense and the holes represent failures within each layer of defense. When the holes in the cheese line up, an accident occurs. Reason classified the failures as either latent failures or active failures. Latent failures are preexisting failures within the system that lie dormant or undetected to the person or organization.

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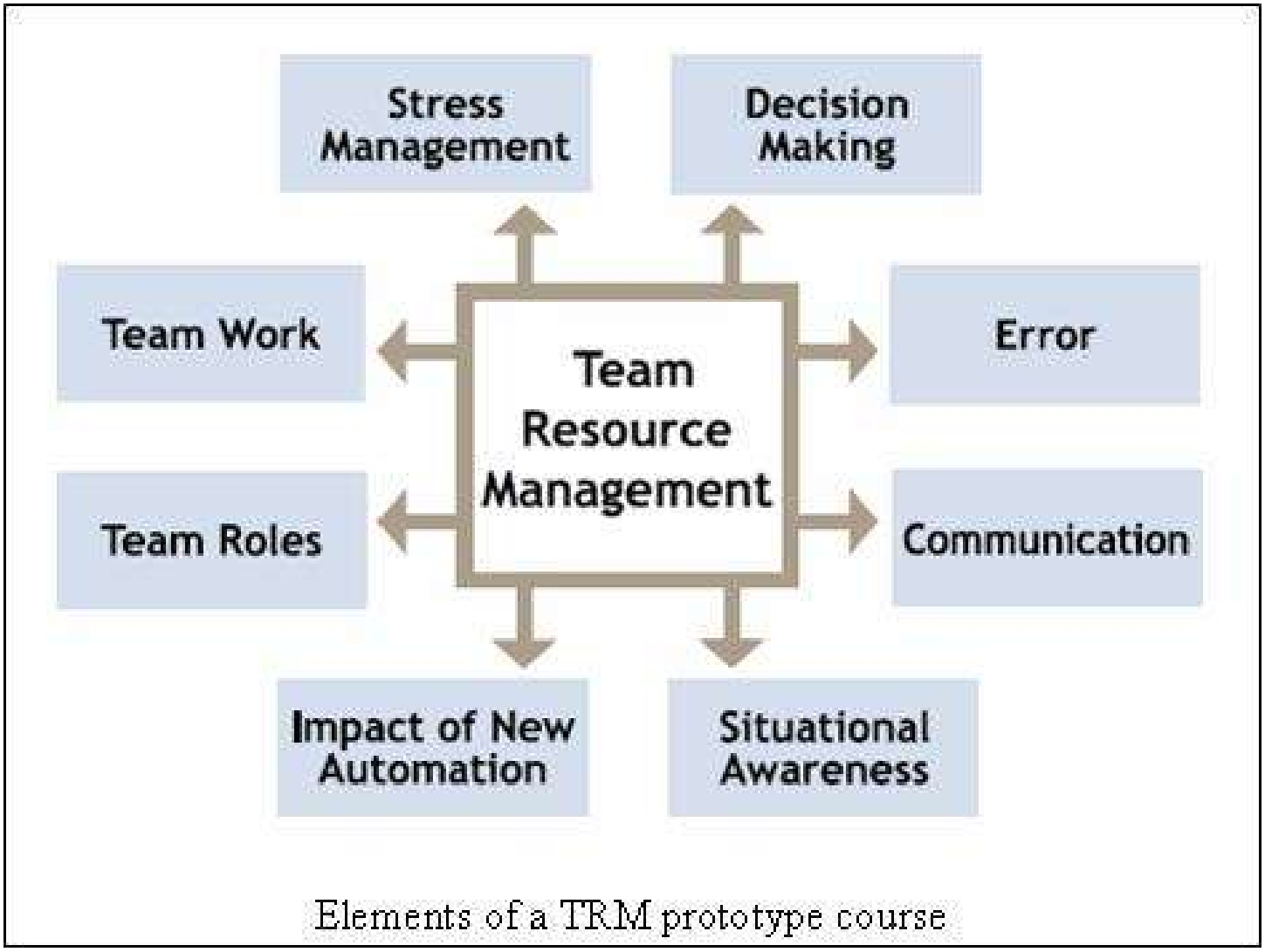
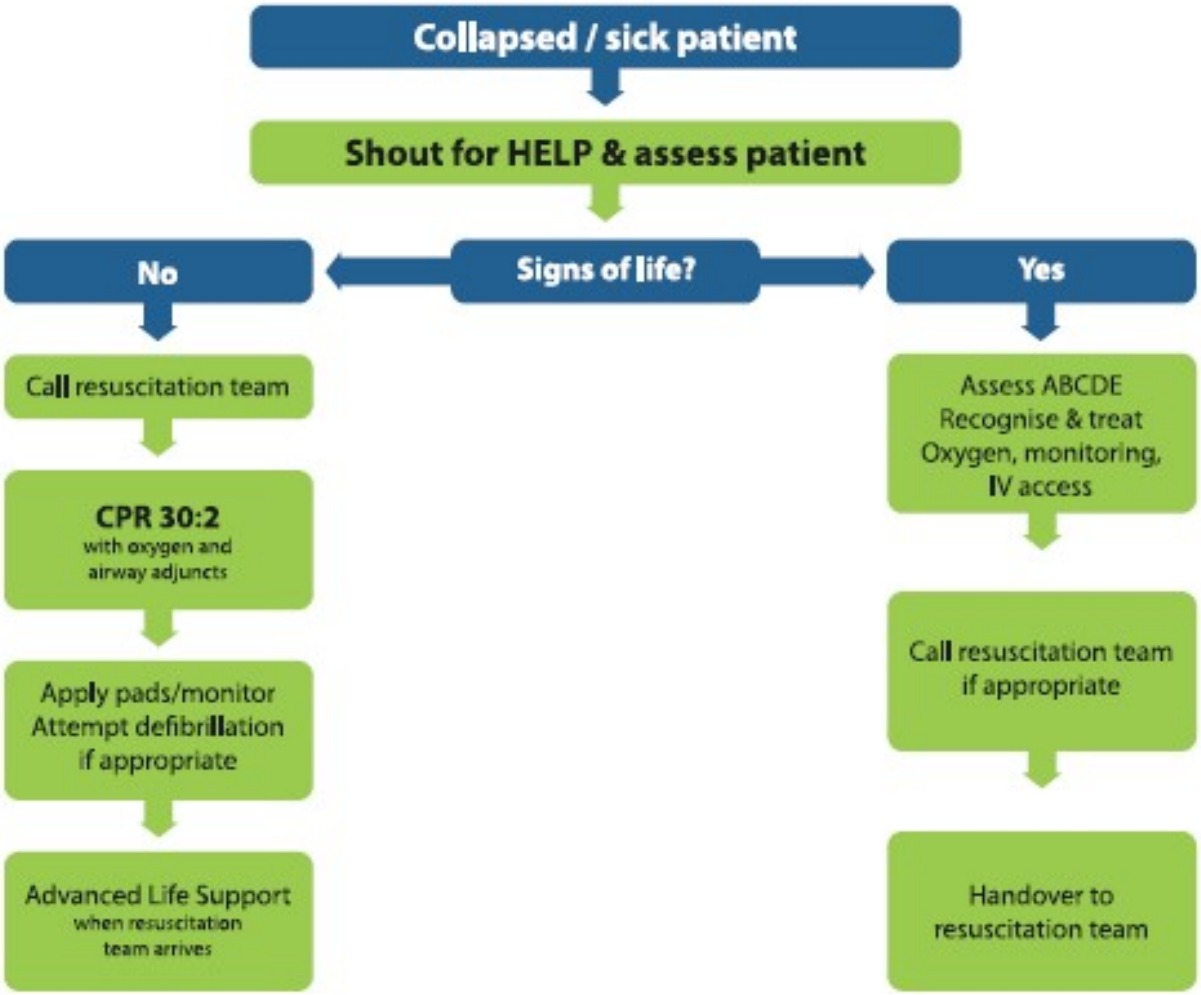


Elements of a TRM prototype course

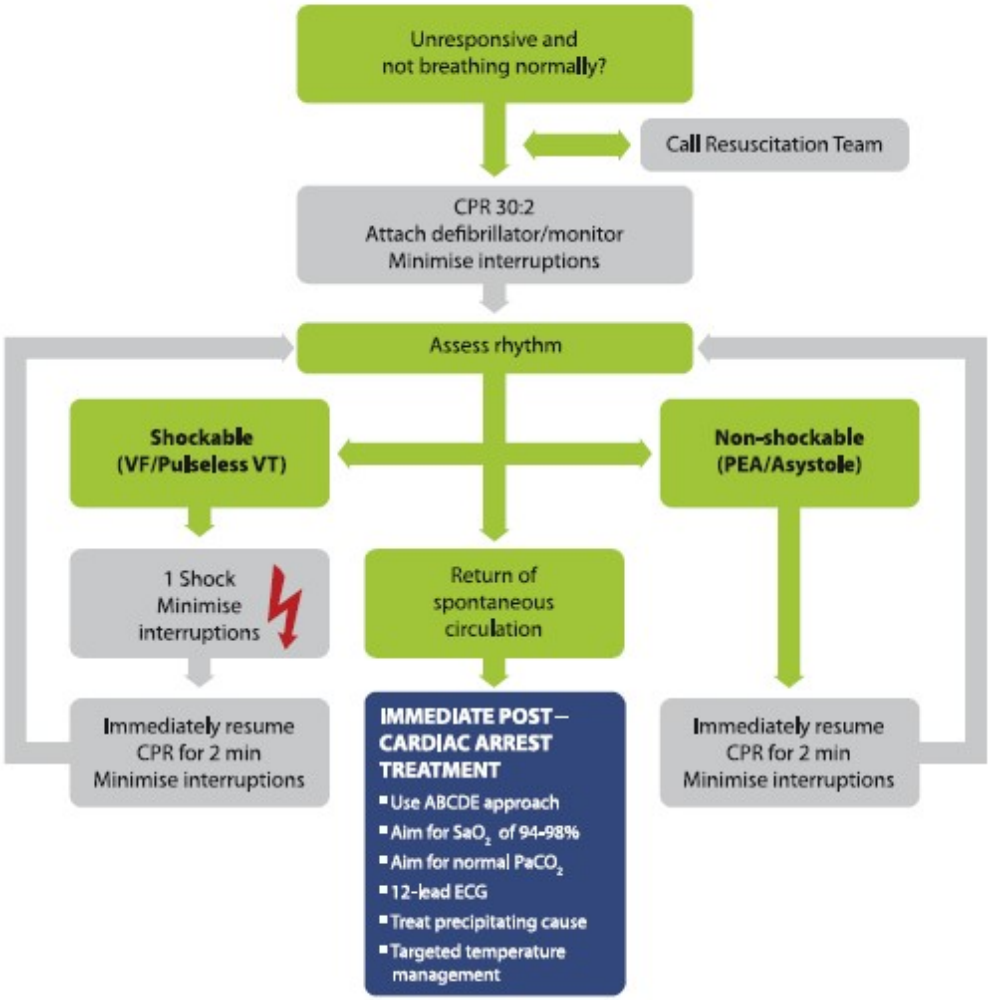

COMMUNICATION
LEADERSHIP & MANAGEMENT
CO-OPERATION
SITUATION AWARENESS
DECISION MAKING
Crew Resource Management Skills


S
Situation
B
Background
A
Assessment
R
Recommendation

In-hospital Resuscitation

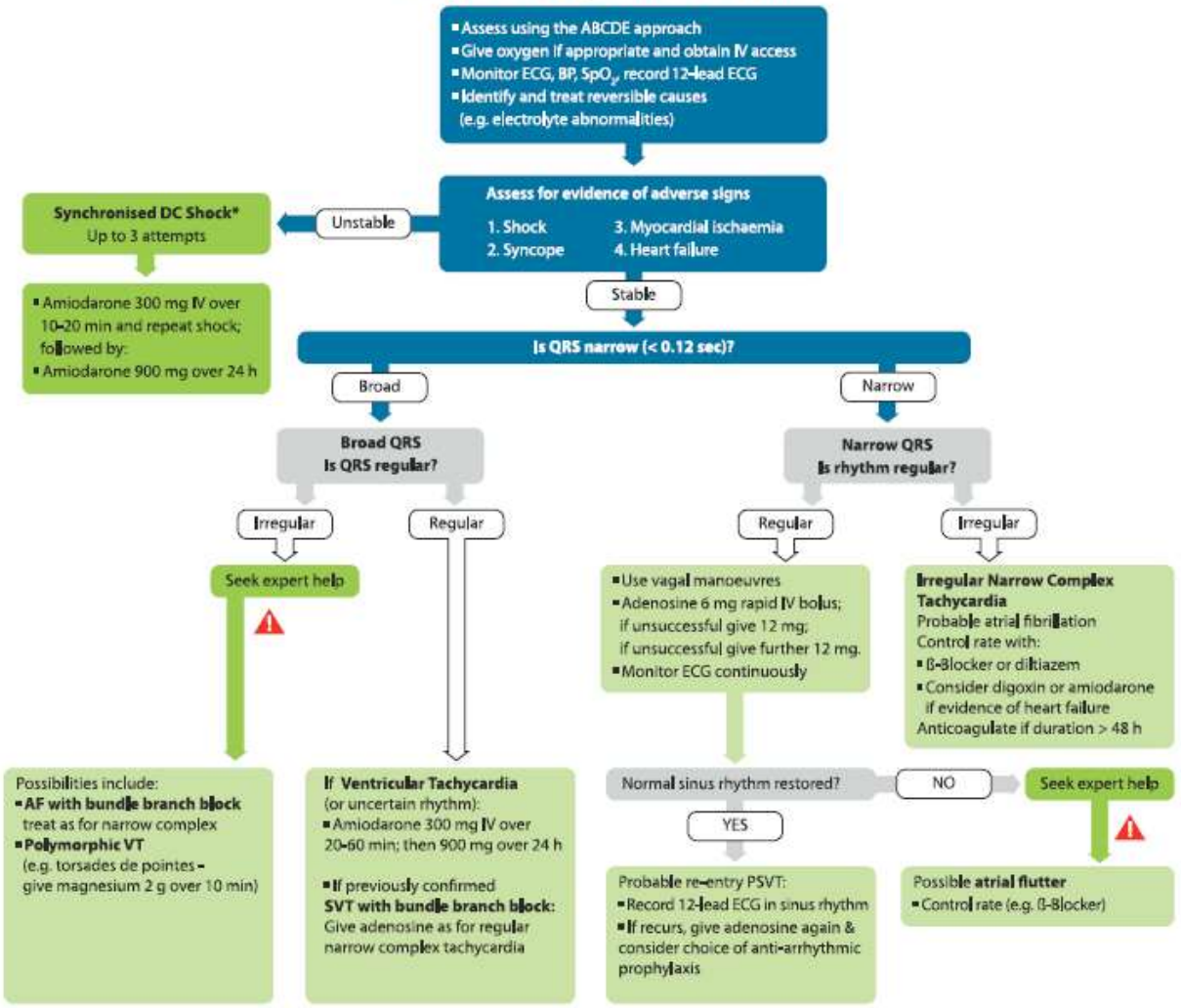


Advanced Life Support

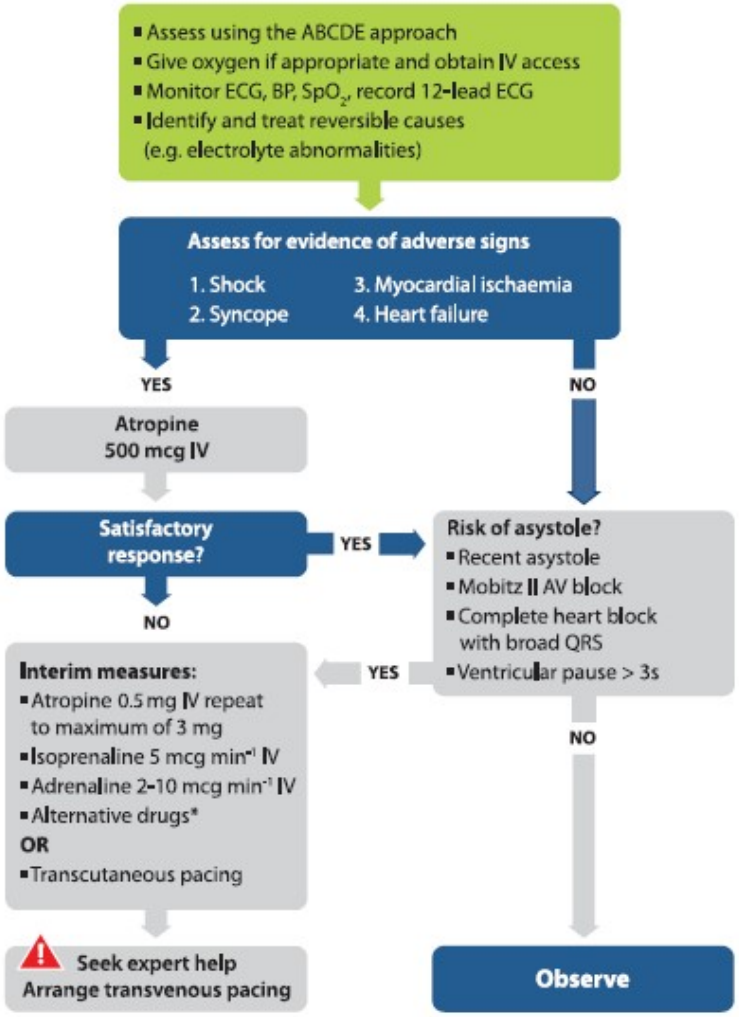


MODENA ICU INTENSIVE CARE UNIT 2

Tachycardia Algorithm (with pulse)



Bradycardia Algorithm



UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

FASiM

UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

FONDAZIONE CASSA DI RISPARMIO DI CARPI

Inaugurazione del Centro FASiM

Centro di Formazione Avanzata e Simulazione Medica

ercoledì 24 Gennaio 2018 ore 10,30

dena – Via del Pozzo, 71 – Ingresso 26

ificio di Anatomia Patologica Medicina Legale

ovo Centro di Formazione Avanzata e Simulazione Medica (FASiM) risponde all'obiettivo di rendere più efficace la didattica sta agli iscritti ai Corsi di Laurea e alle Scuole di Specialità della Facoltà di Medicina e Chirurgia, favorendo l'acquisizione di npetenze professionali, tecniche e relazionali.
La Simulazione Medica è un sistema educativo basato sull'uso di mezzi formativi innovativi, inseriti in uno scenario clinico realistico, he crea un ambiente di apprendimento sicuro per gli studenti, che sono quindi favoriti nell'integrazione fra teoria e pratica e nella flessione sull'esperienza della figura dell'addetto MO-3d degli ex Istituti Anatomici, nell'area del Policlinico. Si compone di 5 sale a Simulazione salvaguardia i pazienti, garantendo loro cure efficaci e sicure e riducendo il rischio clinico.
Il FASiM è stato realizzato al piano terra dell'addetto MO-3d degli ex Istituti Anatomici, nell'area del Policlinico. Si compone di 5 sale simulazione, di cui 2 ad alta fedeltà per la simulazione di scenario, e 3 prevalentemente dedicate all'acquisizione di abilità tecniche; il sala regia da cui l'tutor coordinano le simulazioni. Sempre al piano terra dello stesso edificio è stata ristrutturata anche l'aula Q.ze, che è sistemi audio-video alle sale di simulazione. Sempre al piano terra dello stesso edificio è stata ristrutturata anche l'aula Q.ze, che è dedicata al video-collegamento con le sale simulatori per un numero superiore di discenti. Il Centro dispone di una ampia dotazione strumentale, fra cui un manichino simulatore avanzato adulto, un manichino simulatore ostetrico-ginecologico avanzato, e numerosi manichini a bassa fedeltà e skill trainer.
L'opera è stata sostenuta anche dall'importante contributo generosamente offerto dalla Fondazione Cassa di Risparmio di Carpi.

Intervengono

ANGELO O. ANDRISANO
Magnifico Rettore dell'Università degli Studi di Modena e Reggio Emilia

GIUSEPPE SCHENA
Presidente della Fondazione Cassa di Risparmio di Carpi

PAOLO TARTARINI
Delegato del Rettore per le problematiche energetiche e l'edilizia

FAUSTA LUI
Presidente del Corso di Laurea in Medicina e Chirurgia

GIOVANNI PELLACANI
Presidente della Facoltà di Medicina e Chirurgia dell'Università degli Studi di Modena e Reggio Emilia

ESEMPIO DI SIMULAZIONE
TAGLIO DEL NASTRO E VISITA DELLA STRUTTURA

• Per ragioni organizzative si prega gentilmente di confermare la propria presenza, **entro e non oltre lunedì 22 gennaio**, ad uno dei seguenti recapiti: valentina.brancolini@unimore.it – tel 059/2056869 – 3664207749

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ASiM

ma ad oggi Bortolamasi dice di non volerci più

...erto "furbetto" del ca...

...endente del Comune timbrava poi andava al bar

IMPORTANTE NOVITÀ PER LA FACOLTÀ DI MEDICINA

Ecco Fasim, l'ospedale virtuale per allenare i dottori

Due medici spiegano il funzionamento della sala di simulazione del Policlinico.

ALLE PAG. 12 E 13