



**PROGRAM EXECUTIVE OFFICE FOR  
SIMULATION, TRAINING & INSTRUMENTATION**

# Translating Military Simulation to Healthcare Simulation:

Lessons Learned from the Medical Simulation and Training Centers

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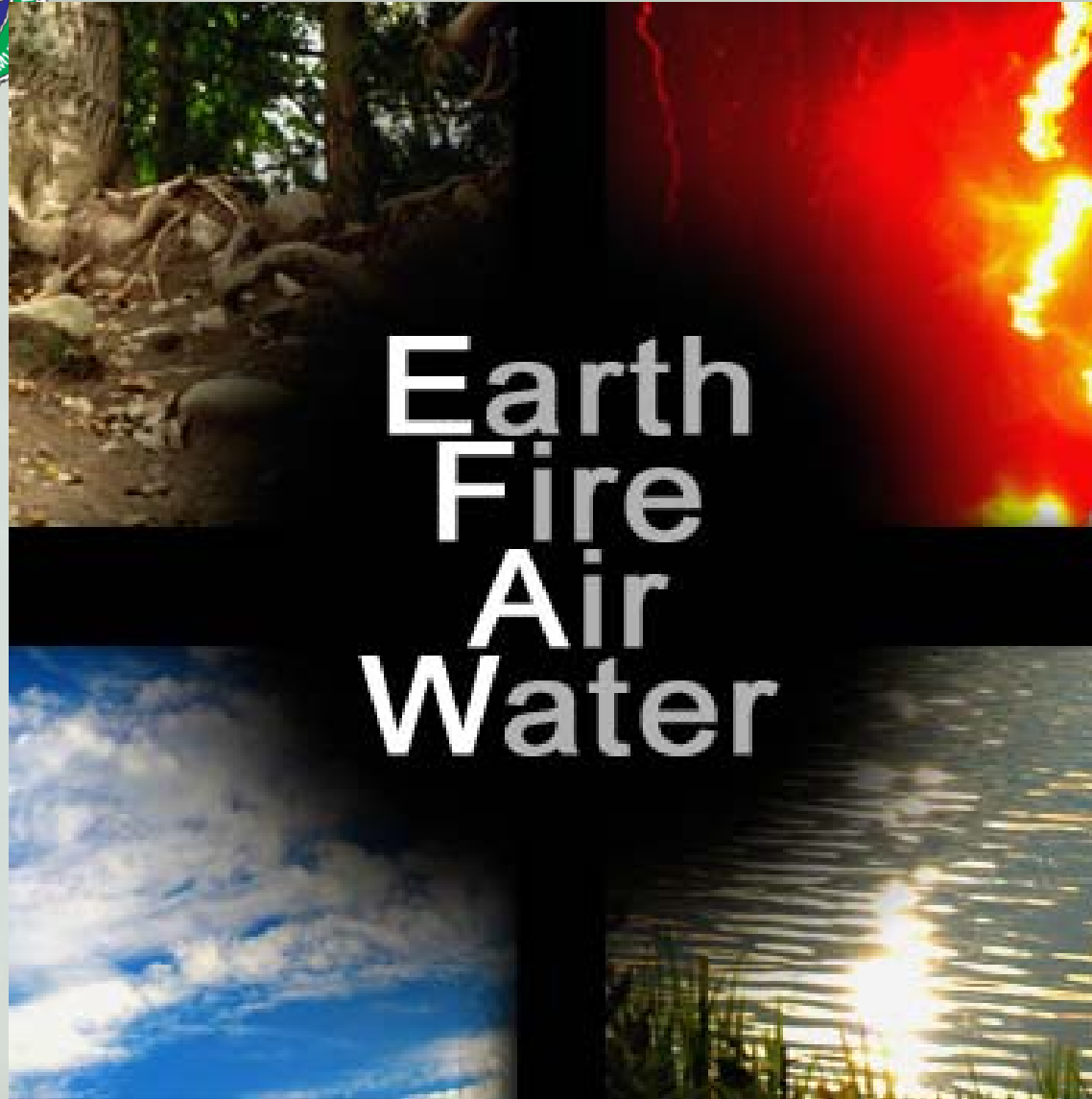
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Security and OPSEC Review Completed: No Issues.



AMERICAN COLLEGE OF SURGEONS • DIVISION OF EDUCATION  
**ACCREDITED EDUCATION INSTITUTES™**  
ENHANCING PATIENT SAFETY THROUGH SIMULATION



# Classic Greek Elements



Earth  
Fire  
Air  
Water



# Classic Military Simulation Elements

Live



Virtual



Constructive

(DEFENSE DEPT.)



Games



# Left & Right of the Blast

Dr. Joe Rosen, Dartmouth Medical School



© RAF

Left of the Blast



Combat Simulations

Learn to be successful in battle



Albasrah.net

Right of the Blast



Medical Simulations

Recovering from the outcome of battle

Cusp of Mortality  
For a Young Soldier



# Military Medical Simulation Elements

Live



Virtual



Constructive



Games

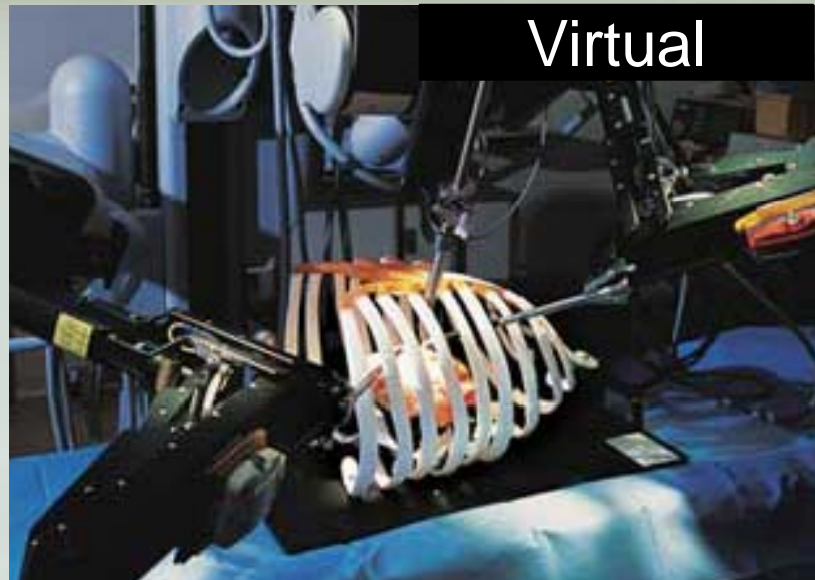


# Civilian Medical Simulation Elements?

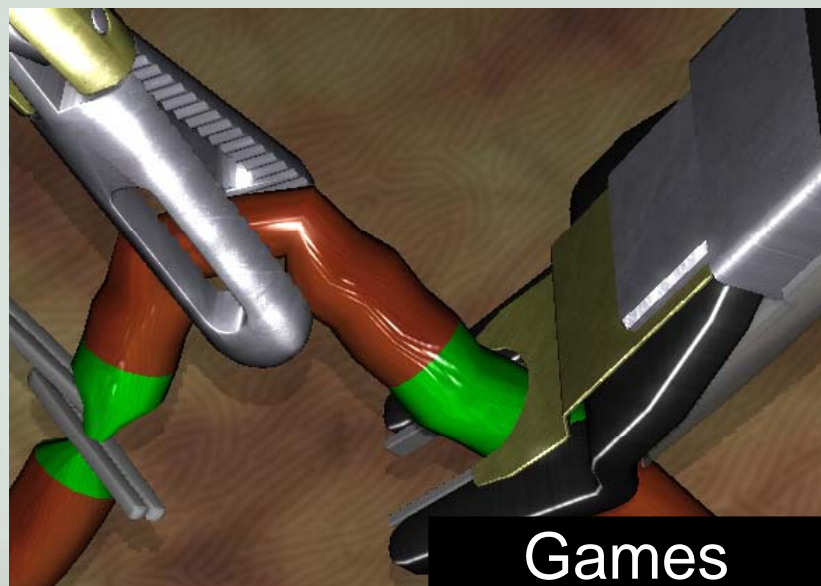
Live



Virtual



Constructive



Games



## Live

- Pyro, Smoke, Tear Gas
- Lasers & Sensors
- Range Instrumentation & Tracking
- Video & Audio Recording
- Virtual Reality Overlays

## Virtual

- Vehicle Mock-ups
- Computer Graphics
- Computer Sound
- Tactile Instruments
- Mathematics
- Databases
- Local Networks

## LVCG Integration

- Human Mediated
- Computer Protocol
- Database Mirroring

- Logic Threads
- Mathematics
- Databases (Terrain, Scenarios, Results)
- Global Networks
- Aggregation of Data
- Interface to Combat Computers

## Constructive

- Computer Graphics
- Computer Sound
- Artificial Intelligence
- Human Interface Design
- Local Networking
- Logic Rules

## Games



# Medical Simulation Training Center

**Kuwait**



**Fort Carson , CO.**



**Fort Lewis, WA.**



**Vilseck, GE**





# Tactical Combat Casualty Care



**IV Arm insertion.** Ability in the right IV arm for insertion into peripheral vein of forearm, antecubital fossa and the dorsum of the hand. Simulated blood flashback on cannulation. IV Bolus or infusion and sites for subcutaneous or intramuscular injections.

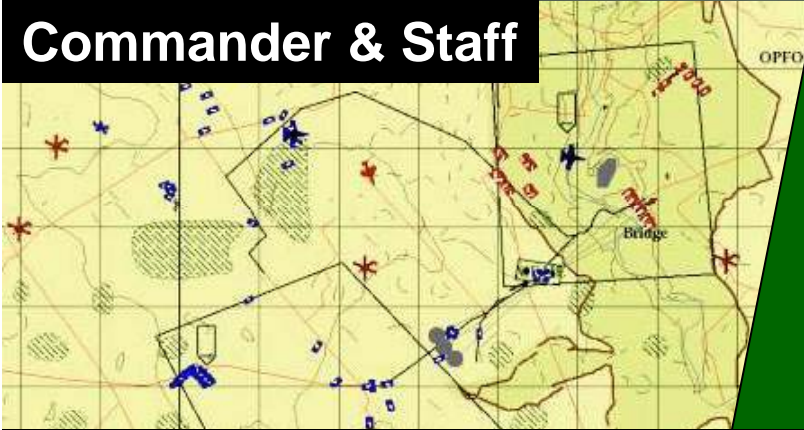


**Chest Tube insertion.** Ability to have a chest tube insertion as well as the ability to provide the results through the physiological medical scenario that is run automatically through software.



# Transferable Experience

**Commander & Staff**



**Medical Resource Manager**



**Leader**

**Pilot, Gunner, Driver**



**Doctor, Nurse, Technician**



**Team**

**Infantry**



**Medic, EMT**



**Individual**



# Transferable Expertise

## Similarities

### Leadership:

Manage Resources, Measure Performance, Provide Feedback

### Team:

Hand/Eye/Mind Coordination, Teamwork, Emotional Response, Situational Learning

### Individual:

Diagnosis, Sustainment, Repair, Routing

## Differences

### Materials:

Hard Steel vs. Soft Tissue

### Behaviors:

Human Attachment, Subject Response



# Real vs. Training Equipment

Real equipment is generally not workable in a high use simulator.  
Too Expensive, Too Fragile, Short Operational Life.  
Need training versions of many items.

