



**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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Approved for Public Release.
Security and OPSEC Review Completed: No Issues.



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



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



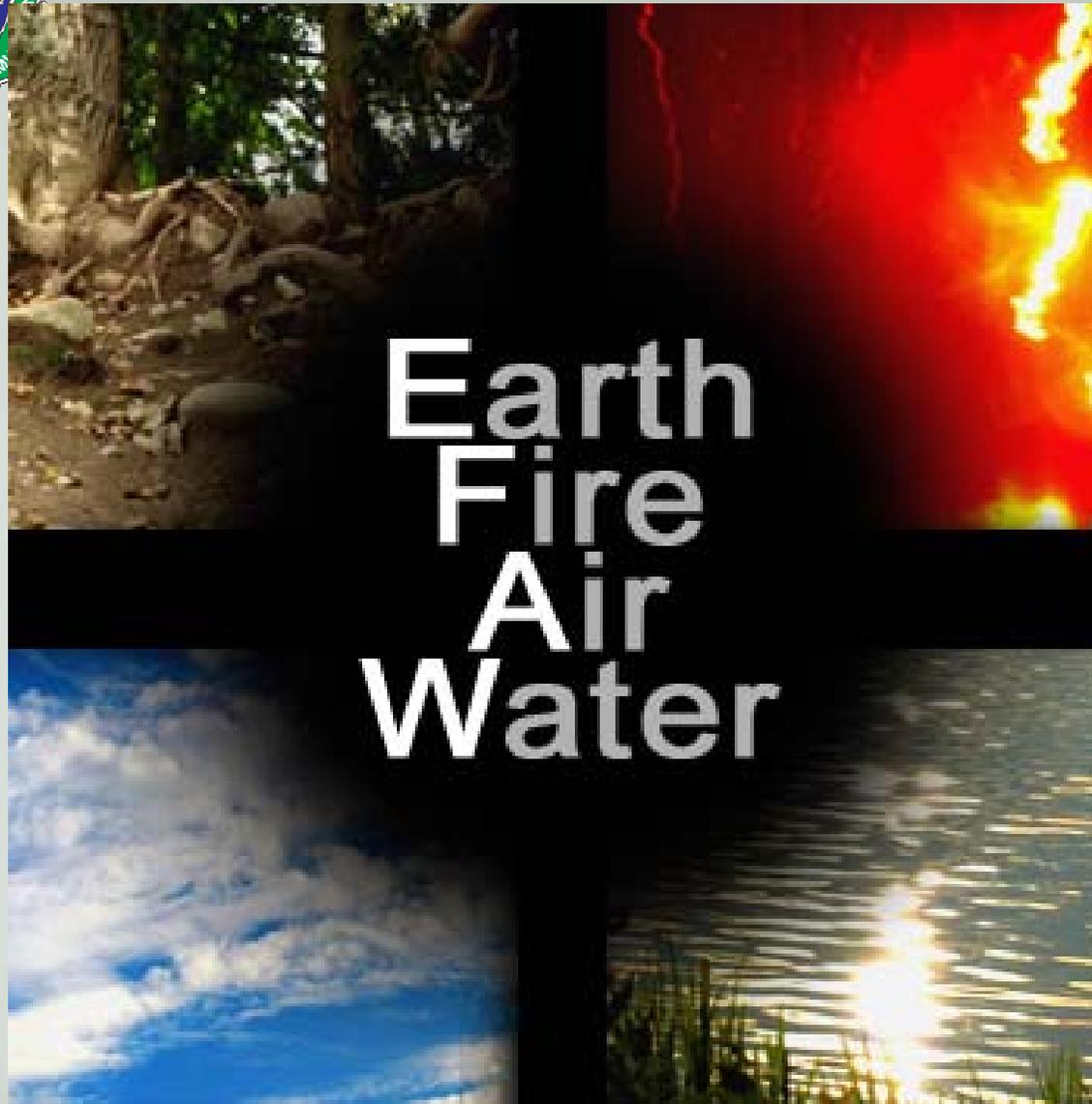
Medical Simulations

Recovering from the outcome of battle

Cusp of Mortality
For a Young Soldier



Classic Greek Elements



Earth
Fire
Air
Water



Classic Military Simulation Elements

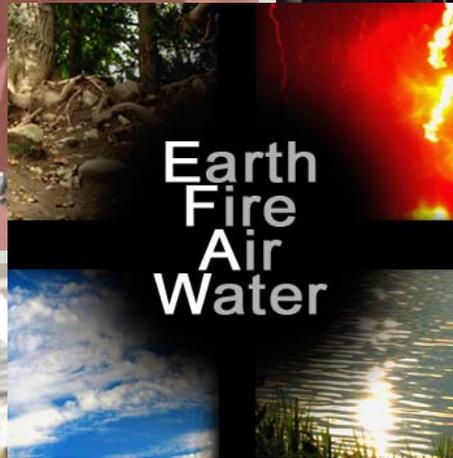
Live



Virtual



Earth
Fire
Air
Water



Constructive

(DEFENSE DEPT.)



Games



Military Medical Simulation Elements

Live



Virtual



Earth
Fire
Air
Water



Constructive



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 thru the physiological medical scenario that is run automatically thru software.



Core Technologies

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
- Database Mirroring
- Computer Protocol

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

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

Constructive

Games

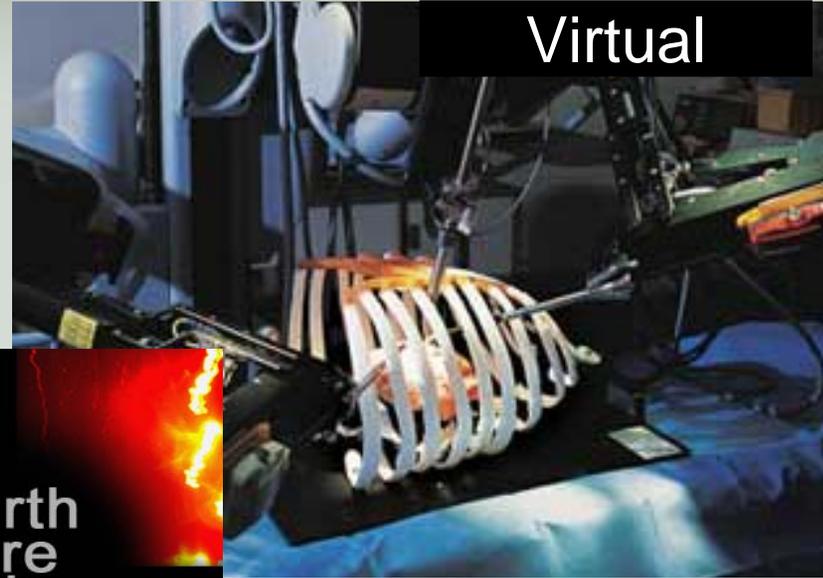


Civilian Medical Simulation Elements?

Live



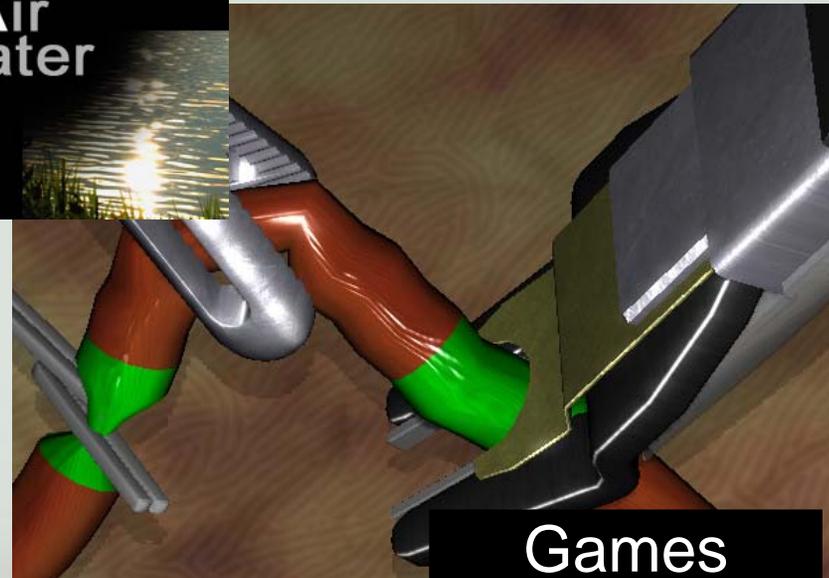
Virtual



Earth
Fire
Air
Water



Constructive



Games



Real vs. Training Equipment

IMSH 2010, Phoenix

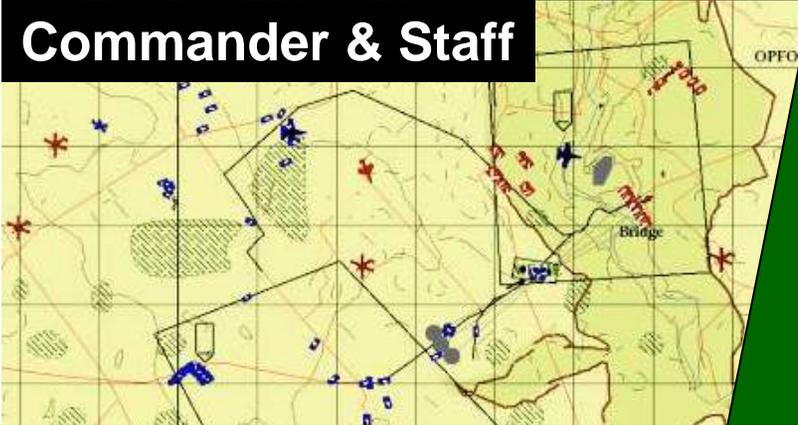
Real equipment is generally not workable in a high use simulator.
Too Expensive, Too Fragile, Short Operational Life.
Need training versions of many items.





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