

PCRM

P H Y S I C I A N S

C O M M I T T E E

F O R

R E S P O N S I B L E

M E D I C I N E

Physicians Committee for Responsible Medicine

- Higher ethical and effectiveness standards in medical education, research, and training
- Preventive medicine
- NIH-funded clinical research
- Federal nutrition reform



Improving Military Medical Training

- Two areas of training
 - Combat trauma training
 - Chemical casualty management training
- Heavy reliance on the use of animals
- Superior human-based training methods exist
- H.R. 4269, the BEST Practices Act

Today's Presenters

- Rep. Bob Filner
- Lt. Col. William Morris, M.D. (ret.)
- Adam Levine, M.D.
- Martin Eason, M.D., J.D.
- Timothy Mooney, M.D.
- Samuel DeMaria, M.D.



Combat Trauma Training: Toward Human-based Methods

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Why I am Here Today

- Graduated West Point
- 20 years in Army Medical Corps
- Neurosurgical residency at Walter Reed
- 1985 – Goat lab in Advanced Trauma Life Support (ATLS) course

Current Methods of Combat Trauma Training

- Heavy reliance on use of live goats and pigs
 - Physicians, medics, corpsmen, sailors, and infantry
 - More than 15 military bases nationwide
 - More than 8,000 animals used each year
- Common procedures
 - Surgical airway
 - Chest tube insertion and needle decompression
 - Tourniquet application
 - Hemorrhage control

1985 to 2010: Some Things Haven't Changed

- My ATLS goat lab experience
- Training was insufficient then - even truer today
- Army Medic Course - Fort Sam Houston
 - Same procedures
 - Same method
 - 25 years later

Superior Training Methods

- Simulators
 - Replicate human anatomy
 - Allow for repetition
 - Used throughout the civilian world
 - American College of Surgeons-approved
 - Developed for the military



METI iStan



Simulab TraumaMan System

Superior Training Methods

- Immersive battlefield environments
 - Recreate sights, sounds, and smells of combat
 - Allow for training under simulated duress
 - Combined with simulators



Superior Training Methods

- Rotations in civilian trauma centers
 - Confidence and decision-making skills
 - Team-building
 - Importance of the “golden hour”
 - Skills training
- Current military partnerships
 - R Adams Cowley Shock Trauma – Baltimore
 - Ryder Trauma Center – Miami
 - Los Angeles County

Superior Training Methods

- Major trauma centers pledge their support



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Moving Into the 21st Century

- Current training is outdated and ineffective
- Current wars make proper medical training an imperative
- Change can and should happen now



Enhancing the Army's Cholinergic Crisis Management Training

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Purpose of Cholinergic Crisis Management (CCM) Training

- To demonstrate the physiologic effects of nerve agents
- Most agents result in cholinergic storm
 - Decreased oxygenation
 - Decreased heart function
 - Seizure
 - Mental status changes
 - Death

Current Method of Training

- Live monkeys anesthetized and “prepared”
- Preparation includes animals anesthetized, intubated, and with intravenous line placed
- Subjects are given a drug that mimics nerve agent
- Subjects are observed for clinical signs of nerve agent effect

Disadvantages of Current System

- Study conditions are unrealistic
 - Nerve agent exposure presents differently based on route of exposure
 - Monkeys under anesthesia do not behave the same as exposed humans
- Physiologic parameters are not monitored so demonstration of physiologic response lost
- Learning is passive

Simulation: A Superior Alternative to Live Animal Use

1. Definitions
2. Mannequin-based Simulation Overview
3. Advantages of Mannequin-Based Simulation for CCM Training
4. Acceptance and Availability of Simulation

Terms and Definitions

- Simulator
 - A device used to reproduce or represent phenomena likely to occur in actual performance
- Simulation
 - An imitation of some real thing, state of affairs, or process. The act of simulating something generally entails representing certain key characteristics or behaviors of a selected physical or abstract system

High Fidelity Mannequin-Based Simulation

- Life-like infant, child, and adult mannequins
- Breathe, have pulses, pupils that react to light, and recognize injected and inhaled medications
- Programmable with an endless permutation of individuals with a variety of medical problems
- Interface seamlessly with medical and rescue devices, such as ventilators and patient monitors

High Fidelity Mannequin-Based Simulation



Advantages of Simulation to Teach CCM Compared to Use of Monkeys

1. No ethical considerations: simulators can die endlessly and can always be brought back to life
2. Avoids the expense and logistics of animal housing and care
3. Standardizes response with a predictable learning agenda

Advantages of Simulation to Teach CCM Compared to Use of Monkeys

4. Avoids confounding external considerations, i.e. general anesthesia
5. Can demonstrate the effect of exposure on a wide range of individuals
6. Can be deployed to a variety of learning environments
7. Fully interactive: learning is active not passive

Simulation: Acceptance and Availability

- Commercially available since 1994
- Practically every medical school in the nation
- American Board of Anesthesiology requires simulation-based education
- The Armed Forces already own more than 650 simulators



Simulation for CCM training: The Israel Experience

- The Israel Center for Medical Simulation
 - Program for military and civilian physicians
 - Directed at emergency management of nuclear, biological, and chemical injuries
 - Over 1,000 physicians, nurses, and medics have participated in this program
- Training to treat chemical warfare casualties
 - HazMat suits
 - 100% of participants thought simulator based training was superior to conventional lecture based training

Cholinergic Crisis Management Simulation Demonstration

- SimMan® 3G from Laerdal Medical





H.R. 4269, the BEST Practices Act

- Addresses current training flaws
- Combat trauma training
- Chemical casualty management training