

# Emergency Care of the Trauma Patient Human Cadavers and Simulators Offer Advantages Over Animal Laboratories

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**M**any medical centers offer courses to assist physicians in providing emergency care for the trauma patient. Course participants gain competence in orotracheal and nasotracheal intubation, cricothyroid puncture, venous catheterization, chest tube insertion, pericardiocentesis, peritoneal lavage, venous cutdown, and other procedures.

## A Better Approach

**M**ost trauma training courses in the U.S. still use live animals to demonstrate invasive trauma skills and test students. But leading the way toward more realistic and popular trauma training courses, the Maryland Shock Trauma Center in Baltimore, Maryland, along with dozens of other medical centers, have eliminated animals from their courses in favor of using human cadavers and realistic simulators. The advantages are enormous.

Canine anatomical landmarks differ significantly from those of the human, and using dogs or other live animals is also very costly. Animal laboratories require the use of a licensed animal-care facility and, in addition to purchasing the animals, expenses include housing, veterinary care, and anesthesia. Additionally, many physicians and others object to using and killing animals for procedures that can be more effectively demonstrated on manikins and human cadavers.

Philip Militello, M.D., an instructor at the Shock Trauma Center, has taught approximately 100 trauma training courses, both with dogs and with the innovative program using human cadavers and simulators. He considers using cadavers a big advantage, and explains, "The anatomy of a cadaver human is identical to a patient, while a dog's anatomical landmarks differ. Over the years, it has become clear that students enjoy doing the procedures on a human cadaver specimen because of the identical scenarios, landmarks, and the hands-on experience. It mirrors the clinical scenario and is very well received."

## Change Encouraged

**T**he American College of Surgeons (ACS), which supervises the Advanced Trauma Life Support (ATLS) program, has recognized the effectiveness of cadavers for the courses and is working toward incorporating a wider use of them in future classes.<sup>1</sup>

In addition, in fall 2001, the Committee on Trauma of the ACS approved the use of simulators meeting certain criteria to be used in place of either cadavers or live animals to teach ATLS.

Shock Trauma Center course director J. Michael Parry, M.D., enthusiastically supports using human cadavers and simulators over anesthetized animals for both educational and financial reasons. "I would tell any other course coordinator or director to look into using cadavers and see how do-able it is....[T]he quality of the learning experience is positive and it's been very advantageous to our budget." Dr. Parry estimates that 95 percent of Shock Trauma Center students rate the cadaver lab superior to the animal laboratory.

## Trauma Training Abroad

**T**rauma training courses in the U.K. have long used manikins and cadaveric material and have gained popularity and acceptance throughout the U.K.<sup>2,3</sup>

In Germany, a Trauma Management Trainer has been developed, which "enables...[the] teaching, training and testing of solitary skills and rapid decision making in basic and advanced trauma life support, without using an animal lab or endangering a patient."<sup>4</sup> This life-size manikin contains realistic anatomical landmarks, is suitable for performing even complex procedures such as peritoneal lavage, and has the tremendous educational and financial benefit of allowing multiple use and repetition.

Computer programs and interactive videodiscs can also serve as cost-effective adjuncts. As early as 1986, physicians from the U.S. military recommended using a computer-based

interactive videodiscs to teach combat trauma life support.<sup>5</sup> Computer and interactive video technology is, of course, far more advanced today.

### For More Information

For those who are planning to enroll in a trauma training course, information on medical centers offering human anatomy-based courses is available on the Internet at [www.TraumaTraining.org](http://www.TraumaTraining.org) or by e-mailing [trauma@pcrm.org](mailto:trauma@pcrm.org).

Preliminary studies suggest that the vast majority of physicians who have taken both animal-based and cadaver-based courses prefer the courses utilizing cadavers. For those for whom geographic or other concerns preclude enrolling in a human anatomy-based course, local course directors can elect to replace the animal laboratory with a simulator-based surgical skills laboratory.

PCRM will be pleased to provide assistance or further information.

### References

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4. Kanz KG, Deiler S, Ruhland B, Duswald KH, Eitel F, Schweiberer L. [Trauma management trainer: education and training unit for the management of multiple trauma patients.] *Der Chirurg [The Surgeon]* 1989;60:824.
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