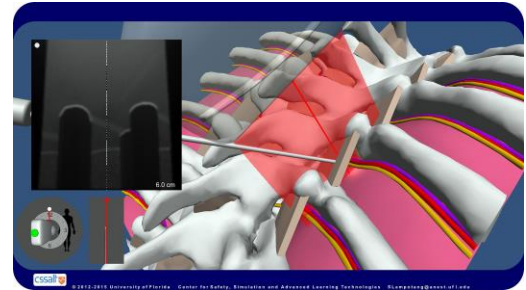
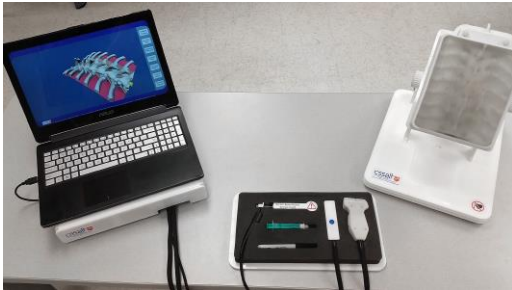


## Mixed Simulator of Thoracic Regional Anesthesia Fact Sheet

University of Florida Center for Safety, Simulation & Advanced Learning Technologies



This robust, turnkey mixed reality simulator simulates part of an anatomically correct thorax for practicing, learning, teaching and debriefing thoracic paravertebral blocks and placement of thoracic epidurals with and without ultrasound guidance or assistance. Designed for austere environments, it does not require wireless or internet access or wet fluids; accepts 110/220V, 50/60Hz. It can be unpacked/set up/be operational by an unfamiliar person in 5-7 minutes. The portable simulator fits inside a military-spec padded case with in-built wheels and telescoping pull-handle that can travel as checked airline luggage and weighs < 50 lbs (23 kg). See video: [http://simulation.health.ufl.edu/research/ra\\_sim.wmv](http://simulation.health.ufl.edu/research/ra_sim.wmv)

### Procedures:

Thoracic Paravertebral with Ultrasound Guidance/Assistance/Landmark  
Thoracic Epidural with Ultrasound Assistance/Landmark

*Out-of-Plane/In-plane  
Midline/Paramedian*

*\*Under Development: Thoracic Intercostal with Ultrasound Guidance/Assistance/Landmark*

### Components:

- CT Scan-based 3D printed high-anatomical fidelity spine plastic model encased in gel
- Virtual model of the anatomy of the spinal cord, nerves, lungs, ligaments, veins and arteries
- Tracked instruments: needle, ultrasound probe, virtual camera (interoperable between SMARTS-compliant simulators)
- Common SMARTS modular stand for use with other modular anatomies and procedures
- Automated scoring and replay system for after action review (AAR)
- Curriculum with integrated tutor (including videos, lectures, mini-skills, and detailed scoring algorithms) for both ultrasound and landmark techniques and procedures

### Technology:

- Adheres to SMARTS (System of Modular Augmented Reality Tracking Simulators) rapid sim. development platform specs
- Quick-release placement and indexing of SMARTS-compliant anatomies to SMARTS platform
- Anatomically correct, based on medical imaging scans of real humans
- Precise sub-millimeter tracking of all events
- High-durability, skin-like replaceable skin

### Features:

- Functional Loss-Of-Resistance syringe
- Simulated hydrolocation in US image & 3D visualization
- Adjustable lung and epidural space for difficulty levels
- Adjustable view modes for realism and AARs
- Ultrasound probe with depth markers
- Hybrid cross-sectional view (3D viz in back half)
- Anisotropy simulation for both needle and lung
- Cognitive aids for US probe and needle orientation
- Tactile feedback of bone and ligament puncture
- Debriefing with replay of past/saved procedures