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Intubation Training of Deploying Far Forward Combat Medical Personnel with the Video Laryngoscope

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Background: Expertise in basic airway management is essential for emergency medical providers. Emergency airway management attempts on the battlefield may frequently end in failure. Studies show the video laryngoscope (VL) enhances intubation training by facilitating anatomical visualization of airway anatomy. We examined the performance and training of military health care providers in a brief intubation training course using both direct view (DV) and VL.

Methods: After IRB approval, trainees completed an online training course in basic intubation. Subjects then completed a pretraining questionnaire followed by a hands-on training session using the Storz Video Laryngoscope on a Laerdal Manikin (standard and difficult airway settings). The participants intubated with DV (covered monitor) and VL (uncovered monitor) under the supervision of an anesthesiologist. Participants then completed a questionnaire indicating confidence levels in successful intubation, airway visualization scores, and technique preference.

Results: All participants agreed that video laryngoscopy improved airway visualization, which resulted in an improved success rate of intubation and decreased intubation time. This training boosted confidence levels in standard airway intubation **(Table, next page)**. Eighty-six percent preferred video laryngoscopy in standard airway intubation and 100% preferred video laryngoscopy for difficult intubations. Ninety-five percent of participants considered this training course worthwhile and would recommend this course to other health care providers.

Discussion: An improved view of the glottic opening would likely enhance the chance of performing a successful intubation. This training format with the video laryngoscope improved airway visualization and intubation performance, promoting increased trainee confidence levels for successful intubation.

Conclusion: Web-based training paired with hands-on instruction with the video laryngoscope improved trainee performance and confidence. This training should be considered as a model for military basic airway management training.

TABLE
Performance data

Confidence levels in successfully intubating a patient on 1st attempt	**Average pretraining confidence level (mean ± SD)**	**Average post-training confidence level (mean ± SD)**
Average confidence level (scale 1–10: 1 = not confident; 10 = very confident)	5.00 ± 2.65 (n = 20)	8.33 ± 1.41 (n = 18)
Average Cormack-Lehane airway grading score		
Airway type	**Direct view**	**Indirect view (VL)**
Standard manikin airway	2.86 ± 0.88 (n = 22)	1.45 ± 0.60 (n = 22)
Difficult manikin airway	3.90 ± 0.42 (n = 22)	1.82 ± 0.80 (n = 22)
Success rates of intubation		
Airway type	**Direct view**	**Indirect view (VL)**
Standard manikin airway	73% (n = 22)	100% (n = 22)
Difficult manikin airway	9% (n = 22)	100% (n = 22)
Post-training preference for laryngoscopic technique		
	Standard laryngoscope	**Video laryngoscope**
For difficult airway	0%	100% (n = 22)
Post-training overall preference for laryngoscopic technique		
	Standard laryngoscope	**Video laryngoscope**
Percentage of respondents	6% (n = 18)	94% (n = 18)