

California Chapter of the American College of Emergency Physicians Research Forum Abstracts

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The following abstracts, which are published here with author permission, were presented at the 36th Annual California Chapter of the American College of Emergency Physicians Scientific Assembly held from May 31, 2007 to June 2, 2007 in Newport Beach, CA.

1 Subclavian Central Line Misplacement: Is it Needle Bevel or Guidewire Direction that Influences Line Placement?

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Objective: To determine whether it is the direction of the needle bevel, J-tip guidewire, or both that influences the direction of the guidewire in subclavian central line placement.

Methods: A total of 1,200 trials were performed using a plastic tubular model simulating the subclavian, IJV, and SCV junction. The trials were divided into six groups: needle bevel pointed upwards with J-tip directed upwards (n=200) or J-tip directed downwards (n=200), needle bevel pointed downwards with J-tip directed upwards (n=200), or J-tip directed downwards (n=200), and needle bevel position blinded to experimenter with J-tip directed upwards (n=200), or J-tip directed downwards (n=200). Twenty-eight textbooks were also referenced to see what is instructed regarding needle bevel and J-tip positioning in central line placement.

Results: The ultimate direction of the guidewire (up towards the IJV versus down towards the SVC) was entirely dependent on the direction of the J-tip guidewire regardless of needle bevel position in 100% of the trials. The guidewire was directed upwards when the J-tip was oriented upwards and directed downwards when the J-tip was oriented downwards. Ten (36%) of the textbooks we referenced commented on needle bevel orientation whereas only one (3.6%) mentioned J-tip direction. Eighteen (64%) of the textbooks did not mention any recommendations regarding needle bevel or J-tip direction.

Conclusions: Current educational resources that teach subclavian line placement overemphasize the importance of

needle bevel direction and fail to mention the much more influential issue of the direction of the guidewire J-tip.

2 Evaluation and Feedback of Medical Students Rotating in Emergency Medicine: A Model for Comprehensive Evaluation and Swift Feedback

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Objectives: Evaluating and providing quality feedback to medical students who rotate through the emergency department (ED) can often prove difficult. Unlike many medical school rotations, where students work with a set team of residents and faculty for a month or longer, in the ED students tend to have sporadic exposure to a broad range of physicians. This makes obtaining consistent and meaningful feedback challenging. We hypothesized that by implementing daily written evaluations and utilizing these to give formal mid- and end-rotation feedback, rotating students would have better interaction and evaluation from faculty and receive more useful and timely feedback.

Methods: Starting in the 2006 academic year, we implemented written evaluations of medical students each shift. Formal constructive feedback sessions were arranged mid- and end-clerkship. Surveys evaluating students satisfaction with feedback were compared to 2005. Additionally, surveys of evaluation and feedback satisfaction from medical students and clerkship directors were collected nationwide.

Results: A significant portion of the 60 students and 53 directors surveyed believe there is inadequate evaluation (36.7% and 45.3% respectively) as well as feedback (31.7% and 41.5% respectively) in emergency medicine clerkships.

The 24 medical students that completed a clerkship in EM at UCSF-Fresno during the 2006 academic year rated their experience of receiving adequate feedback higher than the 20 medical students that rotated in 2005 (mean of 5.96 versus 5.15, $p=.010$). The 2006 students stated that they were highly satisfied with their standardized daily written evaluations (94.1%) and the entire feedback process (94.1%).

Conclusions: The use of daily written evaluations and a mid-rotation formal constructive feedback session improves student perception of receiving adequate feedback. Evaluation and feedback in emergency medicine are perceived as problems by a significant number of both medical students and clerkship directors.

3 Utilization of the Rapid HIV Test in the Emergency Department

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Overview: A patient's HIV status can be critical to the quality of their care in the Emergency Department (ED). A majority of hospitals utilize the standard Enzyme Immunoassay (EIA), with confirmation by the Indirect Fluorescent Antibody (IFA). Both of these tests are time consuming and expensive. A rapid HIV test is currently available for use. Many studies have proven sensitivity and specificity of the test, its cost efficiency and preference by patients, resulting in increased testing, early detection and improved patient care. An extensive literature review was completed utilizing the resources from the Centers for Disease Control (CDC) and PubMed, the database for the National Library of Medicine and the National Institutes of Health. In current research, no studies have assessed whether ED physicians are aware of the test, utilize it, or would utilize it if it were available. It is also unknown whether the availability of this test would change their treatment of a patient in the ED, and if so, what cases.

Objectives: 1. Determine the availability of an ED rapid HIV test. 2. Ascertain whether ED physicians would utilize a rapid HIV test. 3. Identify the most common situations in which an ED physician would utilize the rapid HIV test. 4. Determine reasons an ED physician may not use a rapid HIV test in appropriate patients.

Methods: Study Design: Survey sent via electronic mail.

Participants: Emergency physicians and midlevel providers practicing in emergency departments in California. Timeline: March, 2007. Data Collection and Analysis: SurveyMonkey electronic survey service.

Results: Approximately 1200 practitioners were surveyed with 214 responses for an 18% response rate. The geographical variables showed 72% of the respondents were physicians, 25% physician assistants. The size of the ED was

well distributed; half of the EDs reported an annual census of less than 50,000 and the other half a census of 50,000 or longer. Private hospitals were more strongly represented than county facilities at 82% of respondents. A majority of respondents, 84%, do not have the rapid HIV test available to them in the ED. In response to the survey questions, 73% of respondents said they would use a rapid HIV test if it were available, and 53% stated it was difficult to follow up on positive results after the patient is discharged. Currently, 80% said it takes greater than 24 hours to get HIV results. Over half of the respondents stated availability of a rapid HIV test would change their treatment of sexually transmitted diseases, headache, pneumonia and late presentation pregnancy. When asked why they might not use the test, 77% chose post-test counseling.

Conclusions: In our study, a majority of emergency medicine practitioners do not have a rapid HIV test available to them. The test currently available to them does not give results within a 24-hour time frame, and it is difficult to follow up on positive results in their patient population. Practitioners would use the test if it was available to them, and they would consider testing patients with pneumonia, sexually transmitted diseases, headache and late presentation pregnancy.

4 In-car Airway Options for NASCAR Drivers

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Background: "Stock car" drivers may require an emergency airway while still helmeted in their vehicle.

Objective: Determine the feasibility of various airway methods utilizing a trapped, helmeted, and apneic stock car driver simulation model.

Methods: Using a NASCAR race vehicle a manikin (Laerdel's Sim-Man) was placed in the driver's seat with a HANS device and typical closed face helmet. Airway options included: bag-valve-mask, laryngeal mask airway, intubating LMA, Combitube, digital intubation, Melker® cricothyrotomy kit, Quicktrach® kit, Pertrach® kit, open cricothyrotomy and a "trumpet airway device" (TAD - a nasal trumpet airway with a 5.5 endotracheal tube lodged in the lumen of the nasal trumpet and used as an extension to a bag valve mask device). Two board certified emergency physicians experienced in motorsports medicine and one senior emergency medicine resident physician attempted to implement each airway method. Each physician independently attempted to use each airway method while accessing the manikin via the driver's side window without removing the helmet or HANS device. The physicians were given 20 minutes to determine if each method was possible. If none of the physicians could implement a method