

it was considered non-feasible. If any of the physicians could implement the technique it was considered feasible. Implementation was defined as creating chest rise during a ventilation attempt.

**Results:** No method other than the TAD could be implemented due to a lack of access to the oropharynx. The TAD could be placed but did not produce significant chest rise.

**Conclusion:** Most standard airway techniques are not viable in trapped drivers with closed face helmets. The trumpet airway device may help oxygenate such drivers, however, adequate ventilation using this device should be further studied. Motorsports medical personnel should focus on basic airway maneuvers and rapid extrication with helmet removal rather than wasting valuable time attempting more advanced airways in drivers with full face helmets trapped in their race cars.

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## 5 Survey of State Licensure Boards Regarding Inter-state Practice of Sports Medicine

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**Purpose:** State licensure boards assure the public health, safety, and welfare of their state by providing licensure and regulation of physicians. In the field of sports medicine, duties of team physicians may include traveling out of state with their teams and practicing medicine. Currently, the certification of sports medicine does not address inter-state practice of medicine. The purpose of this study is to see if state licensure boards have addressed this inter-state practice of medicine which is inherent in sports medicine.

**Methods:** This is an observational study using survey forms sent to each of the 50 state licensure boards. The primary question was whether the state had a provision which addresses the ability of an out-of-state physician to assess and treat a contracted athlete, club, or team while they are in that state. Additional questions addressed the type of provision, limitations and regulations, and means of access. Three separate mailings were made over a total of six months.

**Results:** Thirty-five out of 50 states responded; 20 states have no provision and require full state licensure for the practice of medicine within their state. One State had no provision, but specifically stated the allowance of visiting team physicians

as a courtesy. Fourteen States have some form of provision: within their licensure statute (6), a temporary or emergency license (4), a special event license (2), or a temporary license requiring in-state-physician supervision (2). Thirteen of these states provided further information through websites. **Conclusion:** This survey demonstrates that there is no uniform policy regarding the practice of inter-state sports medicine since there are both states with licensure provisions allowing for out-of-state team physicians, as well as states which strictly require in-state licensure. Since only 28% of states have confirmed they allow out of state practice of sports medicine, this is a significant problem. It will only grow worse if not addressed as interstate travel becomes increasingly necessary due to the expansionary nature of national sporting leagues and rise in popularity of younger leagues. This study also reveals that states without provisions in their original medical practice act have in recent years created addendums allowing for event licensure and temporary licensure. These findings encourage us to push for legislative action to allow sports medicine physicians the privilege of inter-state practice of medicine. In the words of our honorable colleagues in North Carolina, "a bill may be proposed in legislative session."

## 6 Comparing the Evaluations of a Case-Based Reasoning Decision Support Tool by a Single Expert Reviewer with Those of End Users.

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**Background:** The development of decision support tools (DST) requires end-users feedback. This is labor intensive and logistically difficult. These difficulties would be eased if the evaluation of a single expert evaluator accurately reflected that of the end users.

**Objective:** To determine the agreement between physician evaluation of the performance of a case-based reasoning (CBR) DST with that of a single expert reviewer

**Methods:** Ten EPs and three midlevel providers were presented with the results of a CBR-based DST designed to predict disposition of children presenting to the ED with bronchiolitis. Each evaluated the predicted disposition, explanatory case, and explanatory dialogue generated by the software using a five-point descriptive scale. The expert reviewer relied on case notes and was blinded to actual disposition. Agreement was measured using the kappa statistic.

**Results:** The case notes and DST output of 109 patients were evaluated. Where the end user and expert evaluator agreed

on the need for admission, agreement on the DST's prediction of disposition was 88.2% (expected 70.6%)  $\kappa$  0.585  $p < 0.001$ . Where the reviewer and end user disagreed on disposition, agreement was 61.7% (expected 62.6%)  $\kappa$  -0.026  $p = NS$ . There was only fair agreement on the value of explanation case provided by the software (observed 69.5% (expected 56.7%)  $\kappa$  0.296  $p < 0.001$ ). Agreement on the usefulness of the explanatory dialogue was poor of 61.6% (expected 55.4%),  $\kappa$  0.139  $p = 0.07$ .

**Conclusions:** A single reviewer had moderate agreement with end users when evaluating a DST's predicted disposition. Agreement decreased as the subjectivity of the components being evaluated increased.

**7 Pediatric Respiratory Infectious Disease Analysis: UTM-RT versus Flocked Swab Nasal Collections**

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**Background:** The collection of anterior nasal washings using saline and a suction bulb has become a standard method for obtaining specimens. Nasopharyngeal swabs and washings are invasive. We measured the agreement for pathogen RNA/DNA detection by PCR between anterior nasal swabs and anterior nasal washings.

**Methods:** Informed consent was obtained. Children up to 18 months of age with a clinical indication for RSV antigen testing were enrolled. A flocked swab was placed in 25 mm inside the nares and immediately placed in a tube containing 1 ml of UTM-RT. Nasal washings were obtained from the opposite nostril of which 0.5 ml was placed in 0.5 ml of UTM-RT. The side and order in which these were obtained was randomly assigned. The samples were stored at 4°C prior to being frozen to -20°C. Aliquots of the UTM-RT were extracted for DNA (Corbett Robotics X-Tractor Gene System) and RNA (Qiagen QIAmp Viral RNA Isolation Kit). DNA extractions were assayed for *Bordetella pertussis* (B. para) and *Bordetella parapertussis* (B. pert) by Real-Time PCR; RNA was assayed for RSV A, human metapneumovirus (hMPV), Influenza A (INF A), and Influenza B (INF B) by reverse transcriptase PCR (either conventional or real-time). Agreement between collection methods was measured with the kappa statistic using Stata 9.2 statistical software.

**Results:** Ninety-eight patients were enrolled. Agreement between swab and washing for the for RSV-A, hMPV and the detection of any pathogen was substantial at 90.8% (expected 72.0%,  $\kappa$  0.67,  $p < 0.001$ ) and almost perfect at 99.0%

(expected 77.7%,  $\kappa$  0.95,  $p < 0.001$ ) respectively. The agreement for the presence of any agent was substantial at 88.5% (expected 55.3%  $\kappa$  0.74,  $p < 0.001$ ). The results of the testing are summarized below:

	hMPV	RSV A	INF A	INF B	B para	B pert
Washings (%)	13 (13.3)	15 (15.3)	2 (2.0)	2 (2.0)	0	0
Swab (%)	12 (12.2)	18 (18.4)	2 (2.0)	6 (6.0)	0	0

**Conclusion:** We found substantial agreement between anterior nasal washings and swabs for pathogen detection by PCR in this small sample of infants and toddlers taken early in our bronchiolitis season. Flocked swab collection method appears to yield greater detection for INF B and RSV A. However, a larger sample size will be required for a more thorough evaluation of the efficacy of the specimen collection methods.

**8 Predicting Complications in Older Adults with Blunt Chest Trauma**

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**Background:** Pulmonary complications increase morbidity and mortality in elderly trauma patients. Little is known about the incidence or variables associated with these adverse events in elderly trauma patients with blunt thoracic injury.

**Objective:** To determine the prevalence of adverse events in elderly trauma patients with blunt thoracic trauma and to identify variables associated with these adverse events.

**Methods:** We performed an explicit chart review of 160 trauma patients over age 65 with significant blunt thoracic trauma. Cases were identified from the UCI trauma registry, a prospective data collection instrument. From this registry charts were systematically reviewed using an explicit data extraction tool. We excluded patients with serious injury to other body areas (abbreviated injury score  $\geq 3$ ) as this confounds the cause of the adverse events. This left a total of 99 patients for analysis. Data collected included patient historical information, physical examination features, radiologic exam findings, length of hospital stay, and clinical outcomes. Adverse events of interest were the development of ARDS or pneumonia, unanticipated intubation, transfer to the ICU for hypoxemia, or death. Data were analyzed with Stata 9.0.

**Results:** Sixteen of the 99 patients developed one of the five pre-defined adverse events of interest (16.2% CI 9.5-24.9%) including two deaths. 19.2% of those 65-74 experienced an adverse outcome, 6.1% of those 75-84 experienced an adverse outcome, and 28.6% of those over 85 experienced an adverse outcome. All patients were admitted. The mean LOS was 5.8