

competencies were the basis for creation of content to be included in the curriculum for PEM Fellows. A web-based version was created for access by any fellowship program.

**Results:** Ten modules were created in educational online program (Softchalk LLC, Richmond, VA) and hosted on a Learning Management (LMS) website. Topics included personal preparedness, triage, bioterrorism, biological, chemical, radiological, blast and natural events, hospital management, ethics and legal issues, and culminate them in a drill scenario for adaptation to individual programs. Review activities and questions were embedded to promote learning in multiple layers of Bloom's taxonomy. Preliminary data to complete all components from users was less than 10 hours.

**Conclusion:** PEM Physicians are ideally situated to be the experts to their hospitals, communities, and systems of care for pediatric disaster preparedness. The online and group activities provide multiple modes for learners to acquire knowledge and integrate into their practice using broad educational principles. Evaluation of the curriculum regarding more participation by individuals and programs to further research in pediatric disaster preparedness and mentor individuals to become experts in DP.

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### Attitudes of Health Care Stakeholders Concerning Admitting and Treating Pediatric Trauma Casualties in Emergency Departments: A Qualitative Study

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**Study/Objective:** To examine the attitudes of policy makers, senior health care managers, and hospital medical administrators concerning admitting and treating pediatric trauma casualties in Emergency Departments (EDs).

**Background:** Pediatric trauma is a dominant cause of morbidity and mortality in children. A significant variability exists among health care systems concerning the ED designated to admit and treat pediatric trauma casualties. The medical staff appointed as case managers, or professional staff members, specific training and education programs.

**Methods:** Semi-structured interviews of 17 senior health care stakeholders from a variety of positions, including national, regional, and local organizations, to facilitate a wide variety of attitudes concerning the study. The analysis was made according to the Grounded Theory.

**Results:** All study participants emphasized the need for 24/7 availability of pediatric medical teams to admit and treat injured children. Varied views were presented concerning the preferred case manager and the required types of training. The pediatric emergency medicine system was defined as challenging, and often lacking in appropriate operating procedure. Ten of 17 respondents perceived the pediatric ED with trained medical staff as the optimal admitting and treating site. Furthermore, the majority

believes that severe pediatric trauma casualties should be centralized solely in specific, pre-designated medical centers.

**Conclusion:** In order to optimize the treatment of pediatric trauma casualties, significant changes should be implemented concerning the ED sites assigned to admit and treat injured children. Designated legislation is recommended, concerning centralization of severe pediatric casualties in specific medical centers that are equipped with appropriate infrastructure, professional manpower, procedures, and protocols. Budget incentives to increase staff commitment for 24/7 availability should also be considered.

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### Comparison of Formulas for Orotracheal Intubation Depth in the Pediatric Population

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**Study/Objective:** Depth of oral endotracheal tube placement in the pediatric population is commonly calculated using Broselow Tape, Endotracheal Tube (ETT) size x 3, and the age-based formula of age divided by 2, add 12. The objective was to determine the accuracy of the three methods across the age and weight groups.

**Background:** All intubations performed in the pediatric emergency unit of KK Women and Children's Hospital from January 1, 2009 to December 31, 2013 were selected for review in this retrospective observational study.

**Methods:** ETT position between T2 to T4 vertebral bodies was taken as the reference position. The depths of ETT placement based on the formulas were calculated from the actual depth of ETT on the chest X-ray. These were compared to the reference position for accuracy.

**Results:** ETT size x 3 has the highest accuracy of 76.5%, as compared to 63.6% for age-based formula and 63.5% for Broselow Tape. When the formulas are inaccurate, Broselow Tape often predicted a depth that was too shallow as compared to ETT size x 3 ( $p = 0.013$ ) and age-based ( $p = 0.004$ ). All three formulas performed better for older children, particularly ETT size x 3, and age-based ( $p < 0.05$ ). The depth using the age-based formula was too deep in 65% of children less than 1 year old. For weight, the depths using ETT size x 3 and age-based formula was too deep for children of lower body weight ( $p < 0.05$ ), and the depth using age-based formula was too shallow ( $p < 0.001$ ) for patients of higher body weight.

**Conclusion:** ETT size x 3 was the superior formula for determining oro-tracheal intubation depth. Caution should be exercised when applying these formulas in patients less than 1 year old, or in patients with extremes of body weight as they are less reliable.

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