SD = 41.69), p < .01. Mean resident-perceived feedback quality scores were similar pre-incentive (M = 7.52, SD = 0.63) and post-incentive (M = 7.71, SD 0.57), p = 0.66.

Conclusion: This financial incentive is associated with significantly increased quantity of end-of-shift card completion, but no difference in resident-perceived quality of end-of-shift feedback.

98 Ultrasound-Guided Nerve Blocks: A Comparison of Two Teaching Methods: Traditional Identification of Nerves Versus Hands-on Practice With a Gel Phantom Model

Nguyen TC, Holley C, Meador J, Windsor TA, Witting M, *Euerle B*/University of Maryland Medical Center, Baltimore, MD; University of Maryland Baltimore Washington Medical Center, Glen Burnie, MD; University of Maryland Upper Chesapeake Medical Center, Bel Air, MD; University of Maryland School of Medicine, Baltimore, MD

Study Objectives: Patients often present to the emergency department with conditions that may benefit from the use of nerve blocks. The traditional teaching method for ultrasound-guided (USG) nerve blocks in our residency program involves direct visualization and identification of forearm nerves, coupled with a discussion of how the block would be performed. An alternative teaching method provides hands-on practice to perform USG local injections using a moderately expensive, commercial gel phantom model.

This study aims to determine which method is superior in providing a user the comfort level to perform an USG nerve block without supervision, and to evaluate if utilizing both teaching methods is better than utilizing a single method alone.

Methods: The study is comprised of 44 participants from a single center, including attending physicians, residents and nurse practitioners. We calculated an 80% power to detect a 40% increase for the superior of the two methods with a significance of 0.05, requiring 38 participants. Participants viewed a video lecture on USG nerve blocks, answered an initial questionnaire, and were randomized into two groups, doing either the traditional teaching method or using the gel phantom model first. Participants then crossed over to the other method. They took a second questionnaire after completing the initial training method, and a final questionnaire after the crossover method indicating their likelihood of performing USG nerve blocks without supervision.

We used Fisher's exact test to analyze the key outcome, and calculated the proportions and used a normal binomial approximation for the confidence intervals to evaluate the secondary outcome.

Results: Prior to the first training session, 7/44 participants felt ready to perform the procedure independently and were eliminated from further analysis.

The initial comparison after randomization indicated 3/16 (traditional) versus 5/21 (phantom) individuals felt comfortable performing the procedure without supervision, giving a p value of 1 by Fisher's exact test.

Data to evaluate the secondary outcome showed that after the first session, 8/37 (0.22, 95% CI, 0.1-0.4) of the participants felt ready to perform the procedure independently; after the second session, 15 of the remaining 29 (0.52, 95% CI 0.3-0.7) felt ready.

Conclusion: There was no difference between the two teaching methods in providing a user the comfort level to perform USG nerve blocks without supervision. Furthermore, utilizing both methods was superior to using a single method alone. Despite the cost of the gel phantom, it appears to be a beneficial tool to improve ultrasound education and training for nerve blocks.

99 Impact of a Nursing Shortage on Emergency Medicine Residency Training

Palter J, Urbieta V, Nordquist E/Stroger Hospital of Cook County, Chicago, IL

Study Objectives: Our urban, public hospital faced a serious nursing shortage over the past 12 months. Nursing shortages in the ED can lead to deficiencies in staffing and disruptions of patient care. Prior studies examined attending physician and nursing opinions regarding the impact of nursing shortages on patient care and the workplace environment. We are unaware of any previous study that examined resident physician opinions regarding the effects of a nursing shortage. The goal of our study is to obtain resident opinions regarding the effects of a nursing shortage on patient care and resident training.

Methods: A working group of experts developed a survey using closed-format questions with multiple choice responses. It was piloted for study performance, revised, and distributed to residents in a single large EM program with responses being anonymous and voluntary. Descriptive analysis was done.

Results: Response rate was 90% with 47 EM residents participating. 100% of subjects responded that the nursing shortage worsened ED patient flow. Subjects also perceived the nursing shortage worsened patient safety (81%) and worsened their ability to provide appropriate medical care (85%). In regard to the work environment, 62% reported increased levels of stress, 51% reported a decrease in their morale, and 57% perceived the nursing shortage worsened their overall training.

Conclusions: It appears that adequate nursing staffing is important not only for patient care but also for successful EM resident physician training, and it requires further study.

100 Effectiveness and Safety of Procainamide in the Cardioversion of Atrial Fibrillation and Flutter in the Community Emergency Department Setting: A PHARM CAFE Study

Lugovskaya N, Warton EM, Nagam MR, Reed ME, Ballard DW, Rome AM, Stevenson MD, Vinson DR, The KP CREST Network/University of California, Davis, CA; Kaiser Permanente Division of Research, Oakland, CA; The Permanente Medical Group, Oakland, CA; University of California Davis School of Medicine, Sacramento, CA; Stanford University School of Medicine, Palo Alto, CA

Study Objectives: Intravenous (IV) procainamide is the first-line recommended medication for cardioversion of recent-onset (<48h) atrial fibrillation and flutter (AF/FL) by the Canadian Cardiovascular Society, while the American Heart Association suggests restricting its use to stable pre-excitation patients with rapid ventricular response. It is unknown which guideline best describes actual U.S. practice patterns. We sought to evaluate the effectiveness and safety of procainamide in a community ED setting and describe the prevalence of pre-excitation in the treatment cohort.

Methods: This retrospective cohort study included adults who received IV procainamide for AF/FL from 01/2009 to 06/2015 in 21 U.S. community EDs. Only a patient's first qualifying ED visit during the study period was included. We gathered demographic and clinical variables from electronic health records and structured manual chart review. Our effectiveness outcome was cardioversion at both 1.5 and 4 hours. Safety outcomes were the 60-min incidence of hypotension (defined as more than one systolic blood pressure [SBP] <100mmHg) and ventricular tachycardia (VT). We calculated descriptive statistics, performed logistic regression analysis to estimate predictors of cardioversion effectiveness (age, sex, rhythm [AF vs AFL or both], AF/FL history [new diagnosis vs not], and dose [mg/kg]), and described management of hypotension and VT.

Results: Among 386 patients, 350 had AF and 36 had AFL or both (Table). Most (n=376; 97.4%) had recent-onset AF/FL, while only 4 (1.0%) had a pre-excitation syndrome. Most (n=371; 96.1%) received 1 g over 30-60 min. Cardioversion by 1.5 and 4 hours was achieved in 170 (44.0%) and 192 (49.7%) patients, respectively. Median time to cardioversion was 41 min (IQR 29-60). Procainamide was more effective by 1.5 hours in those with AF than AFL/both: 46.3% vs 22.2% (P<0.01). All predictors except dose were associated with higher adjusted odds of cardioversion by 1.5 hours (Table). Hypotension occurred in 35 patients (9.1%), 10 of whom had received other IV pressure-lowering medications within 1 hour of the hypotension. Overall, 17 hypotensive patients (4.4% of the entire cohort) were treated with IV fluids or procainamide discontinuation. The 60-min incidence of VT was 0.8% (n=3). VT was nonsustained and occurred during infusion in all cases. Procainamide was discontinued in 2 patients, and all 3 were discharged home from the ED without sequelae.

Conclusion: We found a low prevalence of pre-excitation among AF/FL patients treated with IV procainamide in this U.S. community ED setting, a cohort more in keeping with Canadian than American society guidelines. Procainamide was effective in cardioversion almost half the time and was associated with low adverse event rates. Older, female, newly diagnosed, and AF (vs AFL) patients were most likely to cardiovert.

Cohort characteristics and associations with 1.5-hr procainamide effectiveness

Variable	N = 386 n (%)	Unadjusted ORs (95% CI)	Adjusted ORs (95% CI)
Age (years)	median 64 (IQR 53-71)	1.03 (1.01, 1.04)‡	1.02 (1.00, 1.04)*
Female (vs male)	170 (44.0)	3.75 (2.46, 5.74)‡	3.79 (2.32, 6.18)‡
AF (vs AFL)	350 (90.7)	3.02 (1.34, 6.80)†	4.0 (1.68, 9.50)†
New diagnosis (vs history of AF/FL)	173 (44.8)	1.46 (0.97, 2.18)	1.79 (1.14, 2.79)*
Dose ≥15 mg/kg (vs <15 mg/kg)	325 (84.2)	1.75 (1.01, 3.04)*	0.78 (0.48, 1.47)

OR, odds ratio. *P<0.05;><0.01>