

demonstrated statistical significance, supporting the use of the MPTT over other tools ($\chi^2=484.55$, $p<0.001$.) Results were unchanged following multiple imputation.

Conclusion: The performance characteristics of the Modified Physiological Triage Tool exceed existing major incident triage systems, whilst maintaining an appropriate rate of over-triage and minimising under-triage within the context of predicting the need for a life-saving intervention in a civilian population. Its use within a civilian major incident context is encouraged.

9 Point-of-care Ultrasound Use in the Diagnostic and Therapeutic Approach to Peritonsillar Abscesses

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Objective: Our previous retrospective, case-control study from January 2007 through December 2008 suggested that emergency medicine point-of-care ultrasound (POCUS) improved successful needle aspiration of peritonsillar abscesses. During that time period, POCUS was used in only 20% of cases. This study aimed to assess the more contemporary use and impact of POCUS since our initial review.

Design & Method: This was a single-center, retrospective, case-control study of all adult patients with a diagnosis of peritonsillar abscess who presented to the emergency department from January 2013 through December 2014. Chart review and abstraction were performed. We separated the data into those with emergency medicine POCUS versus those without ultrasound (NUS). The primary endpoint was successful aspiration with POCUS. Secondary endpoints were frequency of specialty consultation, need for computed tomography (CT), unscheduled return visits within one week, and length of stay. We used Fisher's exact method to analyze the frequency data, and applied the t-test to length of stay.

Results: There were 114 patients enrolled, 89 of whom had POCUS performed (78%). The results were as follows: successful aspiration by an emergency physician (EP), US 89% vs. NUS 4% $p=0.001$, (OR 189.6; 95% CI 23, 1157); overall success (including ear nose throat [ENT] consultant), US 98% vs. NUS 88% $p=0.30$, (OR 2.5; 95% CI 0.39, 15.8); ENT consultation rate, US 15% vs NUS 64% $p=0.002$, (OR 154; 95% CI 19, 1246); additional imaging (CT only), US 27% vs NUS 65% $p=0.002$, (OR 4.8; 95% CI 1.9, 12.3); return visit rate, US 4% vs NUS 12% $p=0.18$, (OR 0.34; 95% CI 0.72, 1.66); length of stay (minutes), US 166 vs NUS 267 $p=0.0002$, (95% CI 146, 309.5).

Conclusion: The increased availability and utilization of ultrasound has impacted our diagnostic and treatment approach to peritonsillar abscesses. Nearly 80% of cases employed POCUS in comparison to 20% previously. Likewise, ultrasound use by EPs improves the rate of successful aspiration of peritonsillar abscesses. Additionally, it appears to decrease specialty consultation rates, CT imaging, and length of stay.

10 Free Open Access Meducation (FOAM): The Global Distribution of Users in 2016

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Objectives: Free Open Access Meducation (FOAM) is a collection of interactive online medical education resources—free and accessible to students, residents, physicians and other learners. This novel approach to medical education has the potential to reach learners across the globe; however, the extent of its reach is still unknown. This study aims to describe the global distribution of FOAM users.

Design and Method: This descriptive report evaluates the 2016 web analytics data from a convenience sample of FOAM web blogs with a focus on emergency medicine & critical care (EMCC). We categorized the number of times a blog site was accessed, or “hits,” by country of access, cross-referenced with World Bank data for population and income level, and then analyzed the data using simple descriptive statistics.

Results: We analyzed 12 FOAM blogs published from six countries, with a total reported volume of approximately 18.7 million hits worldwide in 2016. The number of unique countries accessing each blog ranged from 82 to 209.

The gross annual volume for the 20 countries with the most hits in 2016 is reported in Figure 1, and the adjusted annual volume of the 20 countries with the most hits weighted by country population is reported in Figure 2.

High-income countries have the largest proportion of FOAM users, with 75.3% of total hits and 74% of population-adjusted hits. Low-income countries contributed the least proportion of FOAM users, with only 0.41% and 0.29%, respectively.

Conclusion: FOAM, while largely used in high-income countries, is beginning to be used in low- and middle-income countries as well. The potential to influence medical education in places that otherwise have limited access to emergency medical education is prime for further research.

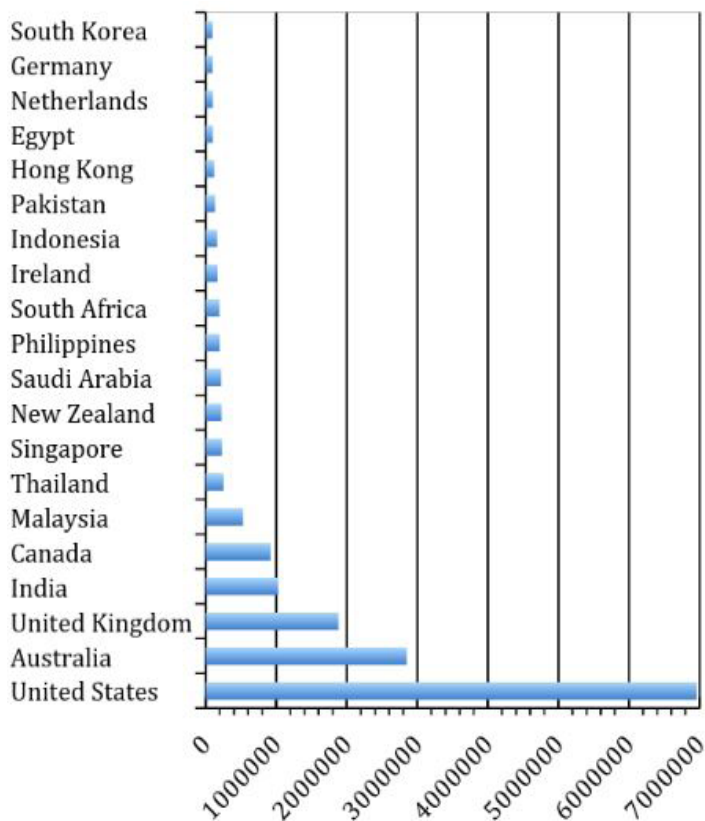


Figure 1. Gross Annual Volume for Top 20 Countries.

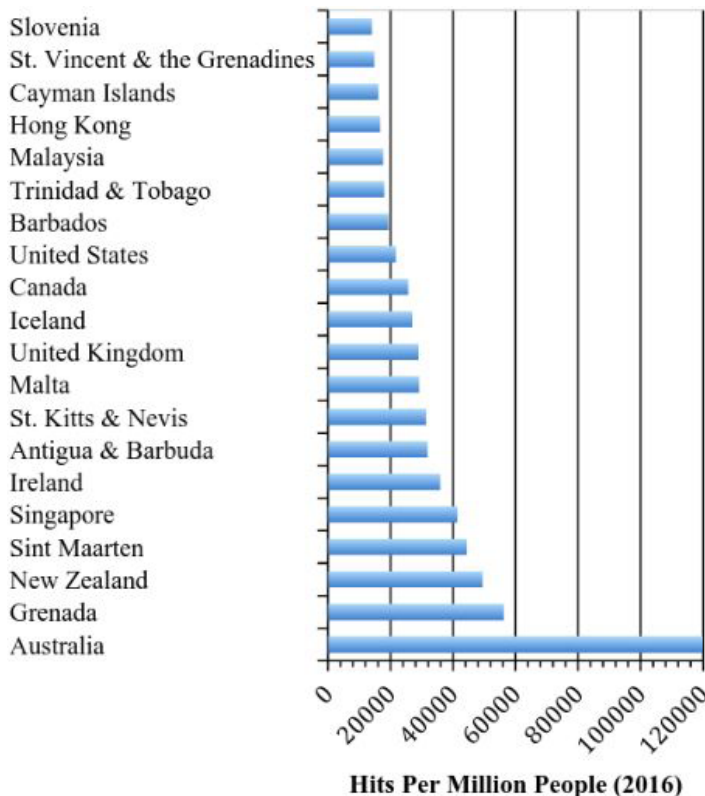


Figure 2. Population-Adjusted Annual Volume from Top 20 Countries.

Table 1. Distribution of FOAM Users by Country Income-Level.

Income Level	Total Hits	% of Total Hits	Hits Per Million People	% of Hits per Million People
High-income	14067663	75.30%	806043	73.72%
Upper-middle income	1604520	8.59%	190835	17.45%
Lower-middle income	2933755	15.70%	93350	8.54%
Low-income	77229	0.41%	3219	0.29%

11 Recovering Capacity – The Impact of Overnight Shifts on Resident Physician Productivity

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Objective: Overnight shifts are a necessary aspect of emergency medicine. While prior research has examined the effect of sleep deprivation on individuals' health and cognitive performance, its ultimate effect on emergency department workflow and individual productivity is unclear. Furthermore, little is known about how much time physicians need to recover from the transition from night to day schedules. We sought to determine the effect of overnight shifts on individual physician trainees' productivity on subsequent daytime shifts.

Design and Method: We conducted a retrospective cohort study of resident patient assignments in a U.S. urban academic emergency department (ED) from 7/1/2010 to 7/1/2016. Timestamps were collected via the ED information dashboard, through which residents assign themselves patients ad libitum throughout shifts. We constructed a generalized estimation equation using an autoregressive correlation structure to predict productivity in terms of patients per shift, with the amount of time since an overnight shift (characterized as greater than 36 hours, less than 36 hours, and 24 hours or less) and the resident's year of training as covariates.

Results: We evaluated 18,296 shifts: 8,351 (45.6%) by first-year residents, and 9,932 (54.4%) by second-year residents. First-year residents saw 9.8 patients per shift (95% CI 9.5-10.2) while second-year residents saw 13.4 patients per shift (95% CI 12.3 – 14.1). First-year residents saw 0.79 fewer patients per shift (95% CI -1.1 – -0.5) on shifts starting 24 hours after an overnight shift, but did not have a significant decrease in productivity when they had more time to recover. Second-year residents did not show a decrease in productivity after overnight shifts, even at 24 hours.

Conclusion: Daytime shifts that closely follow overnight shifts are associated with a small but significant decrease in productivity for resident physicians early in their training, suggesting that trainees need more than 24 hours to transition