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**Introduction:** Fever in the returning traveller is a common ED presentation; however approaches and level of comfort with tropical diseases vary widely. This project aimed to conduct a systematic review and critical appraisal of existing clinical practice guidelines and approaches, to guide an ED approach, in Canada, to fever in the returning traveller. **Methods:** A literature review was conducted of peer reviewed papers, national and international practice guidelines, and practice statements presenting approaches to fever in the returning traveller. A literature search was conducted using MEDLINE and Embase (1947-Dec 2014), with librarian assistance to optimize strategy. The databases of guideline clearing houses, CMA, PHAC, WHO, CDC, and the Cochrane library were searched, along with a google scholar search. References of included articles were hand searched. Article titles and abstracts were reviewed by the author for inclusion. Key elements of the guidelines and approaches were identified and grouped by theme and where appropriate, the quality of guidelines were assessed by two reviewers using the AGREEII tool. **Results:** The search returned 1598 titles. 72 full manuscripts were reviewed based on inclusion from title and abstract, with 24 manuscripts included for final analysis. Common elements suggested by the guidelines or approaches were identified and grouped within three themes (key historical features, physical exam findings, investigations). Most manuscripts presented tables of important clinical information, but limited guidance on how to approach diagnosis in a focused manner. When evaluated by AGREEII, only one guideline (D'Acremont et al) scored > 50% overall quality rating. Unlike other approaches, this guideline proposes a stepwise approach to diagnosis and treatment based on the presence of key exposures, signs/symptoms, and eosinophilia. **Conclusion:** The guideline by D'Acremont et al was identified as the most rigorous existing practice guideline. This guideline, combined with other elements identified by thematic review, forms the basis of a suggested ED approach to fever in the returning traveller, which will be further refined using the AGREEII model to propose a practice guideline for Canadian EDs.

**Keywords:** fever, returning traveller, AGREEII

#### LO073

##### **Implementation of an ED atrial fibrillation and atrial flutter pathway decreases ED length of stay**

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**Introduction:** Atrial fibrillation and flutter (AFF) are the most common arrhythmias presenting to the emergency department. A coordinated ED AFF electronic order-set and management pathway was developed in collaboration with cardiologists at our institution. The primary objective of this study was to compare the ED length of stay pre and post pathway implementation. Secondary objectives included comparison of the following outcomes pre and post-pathway (PRE & POST): AFF Clinic referral rates, ED return rates, and mortality. **Methods:** This was a retrospective case series of patients presenting to our quaternary care ED with AFF pre and post AFF pathway implementation. Cases were identified using an administrative database covering 120 000 annual ED visits. Trained research assistants and the primary investigator extracted data from the electronic medical record. 20% of all charts were double collected to ensure accuracy ( $k = 0.85$ ). Descriptive variables were described using counts, means, medians and confidence intervals. Chi-square statistics of dependent samples were calculated for the primary

outcome. **Results:** We examined 307 cases of AFF presenting to our ED ( $n = 130$  PRE;  $n = 177$  POST). Demographic variables were similar PRE and POST: mean age (66.0 [95%CI 63.8-68.3] PRE; 65.0 [63.0-67.0] POST), % male (59.2% PRE; 59.3% POST), presenting rhythm (66.2% A.fib [58.0-74.3] A. flutter 29.2% [21.4-37.0] PRE; 61.0% A.fib [53.8-68.1] A. flutter 17.5% [11.9-23.1] POST), and CHADS2VASC score (2.1 [1.8-2.4] PRE; 1.9 [1.7-2.1] POST). The mean ED LOS decreased by 72.5 minutes (95% CI -22.9 to -122.1;  $P < 0.001$ ). AFF clinic referral rates increased from 16.9% PRE to 25.4% POST (not significant). ED return rates within 30 days for AFF, CHF, major bleeding and CVA were unchanged. 30 day mortality rates were not statistically different (1.5% PRE vs. 2.8% POST). **Conclusion:** A coordinated ED AFF pathway was associated with a significant reduction in ED LOS without significant changes in ED return rates or mortality.

**Keywords:** atrial fibrillation, length of stay, emergency medicine

#### LO074

##### **Point of care ultrasound for lung B-lines in the early diagnosis of acute decompensated heart failure in the emergency department: a systematic review**

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**Introduction:** Dyspnea is a common presenting problem in the emergency department (ED) that frequently creates a diagnostic challenge for physicians. Acute decompensated heart failure (ADHF) represents a common cause that requires prompt diagnosis and management. Recent studies on dyspneic patients have suggested a potential role for point-of-care ultrasound (PoCUS). The objective of this systematic review was to assess the sensitivity and specificity of early bedside lung ultrasound in patients presenting to the ED with dyspnea. **Methods:** A search of the literature was conducted using PubMed, EMBASE, the Cochrane Library, bibliographies of previous systematic reviews, and abstracts from major emergency medicine conferences. We included prospective studies that assessed the diagnostic accuracy of B-lines from bedside lung ultrasound in the ED patients compared to a clinical diagnosis of ADHF at hospital discharge. The final diagnosis included at least one of CXR, computed tomography, or BNP. Two reviewers independently screened all titles and abstracts for possible inclusions. Two separate content experts full text-reviewed selected studies and performed quality analysis using a modified Critical Appraisal Skills Program (CASP) questionnaire. Extracted data was assessed with summary receiver operator characteristics curve (SROC) analysis with pooled sensitivity and specificity. Heterogeneity was tested. **Results:** The electronic search yielded 3674 articles of which six met the inclusion criteria and fulfilled CASP requirements for methodological quality. The total number of patients in these studies was 1911. Heterogeneity was noted; due to poorer performance by novice users. Meta-analysis of the data showed that in detecting ADHF, bedside lung ultrasound had a pooled sensitivity of 89.6% (95% CI 69.5 to 97.0%) and a pooled specificity of 88.4% (95% CI 75.0 to 95.1%). The positive likelihood ratio was 6.01 (95% CI 2.93 to 12.32) and negative likelihood ratio was 0.13 (95% CI 0.06 to 0.30). **Conclusion:** This study suggests that in patients presenting to the ED with undifferentiated dyspnea, early point of care lung ultrasound may be used to confirm the diagnosis of ADHF, which may facilitate earlier appropriate management. Test performance may vary according to experience.

**Keywords:** point-of-care ultrasound (PoCUS), B-Lines, heart failure