Conclusion: OCRS demonstrated much better sensitivity for SAE compared to current practice, excellent stratification of risk, and good acceptance by physicians. This risk scale should help standardize disposition practices, diminishing both unnecessary admissions and unsafe discharge decisions for ED COPD patients. Figure 106 – Stiell.

107 The Canadian Syncope Risk Score to Identify Patients at Risk for Serious Adverse Events after Emergency Department Disposition

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Background: Considerable variations in ED management of syncope exist with patients suffering serious adverse events (SAE) outside the hospital.

Objectives: We sought to develop a risk scoring system to identify ED syncope patients at risk for SAE after ED disposition.

Methods: This was a prospective cohort study at 6 large Canadian EDs that enrolled adult syncope patients. We collected standardized variables from history, clinical examination, results of investigations including ECG, and patients' disposition at index presentation. Adjudicated SAEs included death, MI, arrhythmia, structural heart disease, pulmonary embolism, significant or subarachnoid hemorrhage, other syncope-related serious conditions or procedures within 30-days of ED disposition. Multiple imputation for missing data, multivariable logistic regression and bootstrap internal validation were performed.

Results: Of the 4,611 patients enrolled (mean age 53.7 years, 55.0% females, and 13.0% hospitalized), 285 (6.2%) suffered SAE during the index visit and 292 (6.3%) were lost to follow-up, leaving 4,034 patients with 147 (3.6%) suffering SAE after ED disposition. Nine variables were independently associated with SAE after ED disposition: precipitating factors for vasovagal syncope, history of heart disease, troponin (>99%ile), ED diagnosis of cardiac, or of vasovagal syncope, any ED systolic blood pressure <90 or >180 mmHg, QRS duration >130msec, abnormal QRS axis and QTc interval >480msec (Table 107). We developed the Canadian Syncope Risk Score incorporating these variables with the risk ranging from 0.4% for a score of -3 to 41.7% for a score of ≥7. Threshold scores of -2 and -1 had a sensitivity of 99.2% and 97.7% and a specificity of 25.6% and 47% for SAE respectively.

Conclusion: An important number of ED syncope patients suffer SAE after ED disposition. Once validated, the Canadian Syncope Risk Score has the potential to standardize ED management, and to improve risk-stratification and disposition decisions.

108 In-person Neurology Consultation Before the Administration of IV tPA for Stroke is Not Associated with Improved Outcomes Compared to Phone Consultation

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Background: ED administration of IV tPA improves functional outcomes for acute ischemic stroke patients but carries a risk of symptomatic intracerebral hemorrhage (sICH). Neurology consultation may inform patient selection and application of tPA eligibility criteria.

Objectives: Within an integrated delivery system with variable telephone and in-person neurology consultation patterns for acute ischemic stroke, we evaluated if the mode of specialist consultation affects in-hospital outcomes.

Methods: We abstracted clinical and neurology-consultation information from the electronic health record for acute ischemic stroke patients treated with IV tPA at 21 integrated delivery system EDs between 2007-2012. Our primary outcomes were sICH (ICH causing neurological deterioration within 36 hours of receiving tPA) and in-hospital mortality. We calculated the propensity score for mode of consultation based on initial National Institutes of Health Stroke Scale (NIHSS) score, age, sex, smoking status, Elixhauser comorbidity score, shift of arrival (on- or off-hours), symptom onset to ED arrival time, calendar year, and facility primary stroke center certification status. We used logistic regression to assess the association between the mode of specialist consultation and outcomes adjusted for propensity score; standard error is corrected by clustering at facility.

Results: Of 604 patients who met inclusion criteria, 261 (43.2%) received a telephone neurology consultation and 343 (56.8%) received an in-person consultation (see Table 108 for patient characteristics). Patients with higher NIHSS scores or who arrived during on-hours were more likely to have an in-person consultation. Overall, 27 (4.5%) of patients had a sICH and 51 (8.4%) died in-hospital. After adjustment, in-person consultation was significantly associated with sICH (OR 4.1, 95% CI 2.1-8.0), but not with in-hospital mortality (OR 1.2, 95%CI 0.7-2.2).

Table 107
Thiruganasambandamoorthy: Risk Factors for 30-Day SAE after ED Disposition among Syncope Patients

Variable	Odds Ratio	95% Confidence Interval - Lower	95% Confidence Interval - Upper	Points
Precipitating factors for vasovagal syncope	0.5	0.3	0.9	-1
Heart disease*	1.7	1.2	2.6	1
Troponin (>99%ile)	2.8	1.8	4.3	2
ED diagnosis of cardiac syncope	3.6	2.4	5.5	2
ED diagnosis of vasovagal syncope	0.4	0.2	0.7	-2
Any ED systolic blood pressure <90 or >180 mmHg	2.3	1.5	3.4	1
QRS duration >130 milliseconds	1.9	1.1	3.3	1
Abnormal QRS axis (<-30 or >110)	1.7	1.1	2.8	1
Corrected QT interval >480 milliseconds	2.9	1.8	4.6	2

*History of cardiomyopathy, heart failure, valvular or coronary artery disease; area under the curve: 0.873; Hosmer-Lemeshow Goodness-of-fit p-value: 0.47

Table 108: Iskin

Patient characteristic	Phone consultation, n=261	In-person consultation, n=343	p-value
Age 18-49 years, no. (%)	27 (10.3)	33 (9.6)	0.01
Age 60-74 years, no. (%)	122 (46.7)	123 (35.9)	
Age 75 or more years, no. (%)	112 (42.9)	187 (54.5)	
Male sex, no. (%)	143 (54.8)	172 (50.2)	0.26
On-hours shift of arrival, no. (%)	127 (48.7)	263 (76.7)	<0.0001
Smokers (excluding unknown, no. %)	30 (11.5)	36 (10.5)	0.04
Symptom onset to ED arrival, mean minutes	67.1	63.2	0.52
ED NIHSS score, mean	6.8	9.6	<0.0001
Elixhauser score, mean	11.7	12.3	0.49

NIHSS score and shift arrival were not significantly associated with either outcome.

Conclusion: While in-person neurology consultation was unexpectedly associated with a higher incidence of sICH, this did not translate into a higher risk of in-hospital mortality. Further investigation is needed to confirm whether telephone consultation is sufficient for safe administration of IV tPA.

109 Application of Focused Echocardiography in Cardiopulmonary Resuscitation: Systemic Review and Meta-analysis

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Background: Cardiac arrest is a commonly encountered emergency requiring intensive intervention. Ultrasonography can be utilized to diagnose potentially reversible causes of cardiac arrest. The AHA 2010 guidelines for CPR and ECC recognized the potential benefits of echocardiography.

Objectives: We conducted a systematic review and meta-analysis to summarize the evidence regarding whether focused echocardiography could be used to identify the causes of cardiac arrest and predict the chance of return of spontaneous circulation (ROSC).

Methods: The major databases, MEDLINE, EMBASE and the Cochrane Library were searched for studies published from inception to October 2014. The medical subject heading (MeSH) and text words for the term "echocardiography" were combined with the MeSH term "cardiopulmonary resuscitation". Exclusion criteria included case reports, comments, and animal studies. Two reviewers extracted and verified the data independently. For prediction of ROSC, we calculated the pooled sensitivity, specificity, positive and negative likelihood ratios of focused echocardiography, along with the respective 95% confidence intervals (CIs), using a bivariate meta-analysis model.

Results: Out of 722 articles identified, 29 studies met the inclusion criteria for further review: 10 narrative review articles and 19 clinical trials. Emergent echocardiography proved feasible during resuscitation and could successfully identify the cause of cardiac arrest in 9 studies. Echocardiographic results guided clinical decision-making in 7 studies. Only one study demonstrated that focused echocardiography improved patients' survival. A subcostal view alone or together with apical or parasternal windows were the most common approach used in 14 studies. For prediction of ROSC based on echocardiographic detection of heart motion, the pooled sensitivity and specificity were 0.92 (95%CI: 0.76-0.97) and 0.86 (95%CI: 0.76-0.91). Positive and negative likelihood ratios were 6.43 (95%CI: 3.71-11.16) and 0.1 (95%CI: 0.03-0.3).

Conclusion: Focused echocardiography is a useful adjunct when treating patients in cardiac arrest, and can be used to identify potentially reversible causes. Utilization of the subcostal view during the pulse-check interval is recommended. Additional studies are required to further delineate the role of echocardiography in resuscitation management.

110 By Default: The Effect of ED Opioid Default Quantities on Prescribing Patterns

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Background: Opioid prescribing patterns have come under increasing scrutiny. To date, there has been limited study of the effect of default quantities as part of ED electronic order entry.

Objectives: We hypothesize that the mean quantity of opioids prescribed will be reduced if the default quantity of 20 tablets is replaced by no default quantity.

Methods: This retrospective, before and after study was performed at a single academic ED with ~50,000 annual visits. We identified all adult patients (18 years or older) seen in the ED over 12 months and discharged home with prescriptions for tablet forms of hydrocodone and oxycodone. We compared the quantity of medication prescribed before and after the electronic order entry prescription default quantity of 20 was removed. No specific messaging was given to providers to avoid influencing prescribing patterns. Two-sample t test, two-sample test of proportions, and a Wilcoxon rank-sum test were used where appropriate for statistical analysis.

Results: 4104 adult patients received discharge prescriptions for opioids in the pre-intervention period, and 422 post-intervention. The mean quantity of opioid tablets prescribed before and after removal of the default quantity was 17.2 and 16.4 tablets, respectively (p=0.178). The most frequent quantity of tablets received in both groups was 20 tablets with the proportion reduced from 49% to 20% after default quantity removal (p<0.001). Analyzed non-parametrically, the distribution of tablet quantities before and after intervention differed significantly in a two-sample Wilcoxon rank-sum test (p<0.001) with more numerous prescriptions for both fewer than 12 tabs and greater than 30 tabs in the post-intervention period.

Conclusion: The mean quantity of opioid prescription quantities did not differ significantly before and after removal of default tab settings. The significantly wider distribution of quantity of tablets prescribed, could reflect more 'appropriate' prescribing patterns (i.e. less severe indications receiving fewer tabs and more severe indications receiving more), and would be a rare example in health care whereby the electronic medical record's ability to reduce practice pattern variability in medication orders actually counteracts optimal patient care. A thoughtful prescribing approach should be encouraged with high-risk medications such as opioids.

111 The Use Of Very Low Levels Of High Sensitivity Troponin T To Rule Out Acute Myocardial Infarction Using A Single Blood Test

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