

Methods: We performed a retrospective observational study of adult ED patients with data from a national company. Clinicians received 6 months of SEA CMT education through the internal email, newsletter, podcast, and learning management system. Outcomes compared pre (1/2016-6/2017) vs post (1/2018-12/2019) intervention included: timely diagnosis (proportion of index SEA visits with a prior related visit within 30 days, mean number of days to diagnosis) and diagnostic testing in back pain visits (rates of spine computed tomography (CT), spine magnetic resonance imaging (MRI), erythrocyte sedimentation rate (ESR), and c-reactive protein (CRP)). ICD10 codes established related visits. We employed logit and linear regression models with standard errors clustered at the facility-level.

Results: We included 8.3 million visits across 59 facilities. Pre vs post periods included 141,273 (4.8%) vs 192,244 (4.5%) back pain visits and 200 vs 401 SEA visits. Excluded visits (5.7 million) comprised those to facilities without radiology or lab data or with < 6 months of pre or post data. There was no difference in the proportion of SEA visits with a prior related visit (26.2% vs 22.3%, difference = -3.9%, 95% CI [-11.7, 3.9]) or mean number of days to diagnosis (3.9 vs 2.5 days, difference = -1.3 days, 95% CI [-2.6, 0.1]). The proportion of back pain visits receiving spine imaging increased for CT (13.7% vs 21.1%, difference = 7.3%, 95% CI [6.1, 8.6]) and MRI (2.9% vs 4.4%, difference = 1.4%, 95% CI [0.9, 1.9]). The proportion of back pain visits receiving ESR (1.7% vs 3.2%, difference = 1.6%, 95% CI [1.3, 1.8]) and CRP (1.2% vs 2.0%, difference = 0.8%, 95% CI [0.6, 1.0]) increased.

Conclusion: Implementation of a clinical management tool to improve diagnosis of spinal epidural abscess was associated with a trend toward earlier diagnosis which did not reach statistical significance. There was a statistically significant change in model screening strategies for SEA across multiple facilities which may serve as a model for changing clinician behavior.

299 | Computed Tomography Use Reduction in Ostensive Ureteral Stones

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Background and Objectives: CT is performed in over 90% of patients diagnosed with ureteral stones, but only 10% of patients presenting to the ED with acute flank pain are hospitalized for a clinically important stone or non-stone diagnosis. Hydronephrosis can be accurately detected using point-of-care ultrasound and is a key predictor of ureteral stone and risk of subsequent complications. The absence of hydronephrosis is not sufficient to exclude a complicated stone. We sought to create a highly sensitive clinical decision rule for the prediction of complicated ureteral stone. We hypothesized that the application of this rule could identify patients at sufficiently low risk of this outcome to avoid CT.

Methods: We conducted a retrospective cohort study in a random sample of 4000 adults who presented to one of 21 Kaiser Permanente Northern California EDs and underwent a non-contrast CT for suspected ureteral stone from 1/1/2016 to 12/31/2020. The primary outcome was complicated stone, defined as stone resulting in hospitalization or urologic procedure within 60 days. We used recursive partition analysis to generate a clinical decision rule predicting the outcome. We estimated the c-statistic (area under the curve) and plotted the receiver operating characteristic (ROC) curve for the model and calculated sensitivity, specificity, and predictive values of the model based on a risk threshold of 2%.

Results: Among 4000 patients, 354 (8.9%) had a complicated stone. Our partition model resulted in four terminal nodes with risks ranging from 0.4% to 21.8%. The area under the ROC curve was 0.81 (95% CI 0.80, 0.83). Using a 2% risk cut point, a clinical decision tree including hydronephrosis, hematuria, and a history of prior stones predicted complicated stones with sensitivity 95.5% (95% CI 92.8 - 97.4), specificity 59.9% (95% CI 58.3 - 61.5), positive predictive value 18.8% (95% CI 18.1 - 19.5), and negative predictive value 99.3% (95% CI 98.8 - 99.6).

Conclusion: Application of this clinical decision rule to imaging decisions would have led to 63% fewer CT scans with a miss rate of 0.4%. A limitation was the application of our decision rule only to patients who underwent CT for suspected ureteral stone. Thus, this rule would not apply to patients who were thought to have ureteral colic but did not receive a CT because ultrasound or history were sufficient for diagnosis. These results could inform future prospective validation studies.

300 | Influence of Color Priming on Comfort With Emergency Department Discharge for Low HEART Score Patients

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Background and Objectives: There is a paucity of studies evaluating how changes in presentation of risk may influence patients within the shared decision-making process. We conducted a prospective trial to evaluate the influence of color priming within written descriptions of risk and comfort for discharge reported by low HEART score chest pain patients.

Methods: This was a prospective interventional trial conducted at an urban, academic ED. We enrolled a convenience sample of consenting, adult ED patients who had a chief complaint of chest pain, a HEART score < 3, and normal ECG/Troponin testing. Each enrolled patient was randomized to identical written surveys entirely in red vs. black font/image showing the percentage of MACE occurring in patients with low-risk chest pain over the next 30-days (>98% chance of no major adverse cardiac outcome over that time period). Patients were then asked to report whether or not they felt safe

