prospectively determine emerging adult's perception of illness, barriers to healthcare access and understanding of medical treatment.

Table

	Home n(%)	Admitted n(%)	P-Value
Total	192 (81.7)	43 (18.3)	
Female	110 (57.3)	24 (55.8)	0.995
African American	180 (93.8)	42 (97.7)	0.517
Have a PCP	104 (54.2)	21 (48.8)	1.000
Health insurance	115 (59.9)	25 (55.8)	0.908
Never smoked	60 (31.3)	10 (23.3)	0.472
Run out of meds	7 (38.0)	7 (16.3)	0.023
# of individuals with ED visit 12 months prior to index visit	55 (28.6)	16 (37.2)	0.357
number of visits (range)	1-8	1-33	
# of individuals with ED visits 12 months after index visit	68 (35.4)	19 (44.2)	0.367
number of visits (range)	1-12	1-18	

135 Aerosol Dose Matters in the Emergency Department: A Comparison of the Impact of Bronchodilator Administration With Two Nebulizer Systems

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Study Objectives: Clinical outcome studies comparing aerosol devices in patients in respiratory distress in the emergency department (ED) are limited. The vibrating mesh nebulizer (VMN) with adapter (Aerogen Ultra, Aerogen Ltd., Ireland) provides> 4-fold drug delivery to lungs compared to jet nebulizer (JN). Aim of the study was to determine whether the improved lung delivery of bronchodilators would have an effect on admission rates, ED discharge rates and total albuterol dose in patients receiving aerosol treatments in the ED.

Methods: A retrospective chart review was done comparing all ED patients receiving aerosol bronchodilator treatments with the standard of practice JN (September 2015) to an equivalent period after implementation of the VMN with adapter (October 2015). Logistic regression with controls for age and diagnosis was used to predict effect the device would have on discharge from the ED and disposition.

Results: Patient charts were reviewed from September (854 JN) and October (722 VMN). In October, the treated population experienced a reduction in admissions from the ED of 33%, associated with a 29% increase in discharges to home compared to September. Patients receiving bronchodilators with the VMN with adapter were 1.5 times more likely to be discharged than the JN group (OR=1.5, p < .001), respectively. The JN group was 1.7 times more likely to be admitted than the VMN group (OR=1.77, p < .001). The VMN group used less total drug (p < .05) with a 75% reduction of maximum albuterol dose administered (20 mg to 5 mg).

Conclusions: The VMN with adapter was associated with fewer admissions to the hospital from the ED with a substantial reduction in maximum albuterol dose required than the JN. The device type was a strong predictor of discharge, disposition and total amount of drug, regardless of age or diagnosis. Randomized controlled studies are needed to corroborate these findings.

136 Impact of Electronic Clinical Decision Support on Initial Site of Care for Emergency Department Patients With Acute Pulmonary Embolism

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Study objectives: Most emergency department (ED) patients with acute pulmonary embolism (PE) are hospitalized despite evidence that many can be safely discharged home. Since physicians may face challenges in identifying eligible outpatient candidates, some site-of-care decisions can fail to match resource utilization with health care needs and patient preference. The PE Severity Index (PESI), validated in an international randomized trial, can be used to safely select ED adults with acute PE for home discharge. We designed a web-based electronic clinical decision support system (CDSS) to bring the PESI to the physician at the point of care. The CDSS rapidly draws data from the real-time electronic health record (EHR) to auto-populate the PESI, allows for physician editing, calculates the risk score and estimated 30d mortality, suggests an initial site of care, and reminds the physician of the relative contraindications to outpatient care. This CDSS was actively promoted by on-site network physician champions who provided periodic physician education, iterative feedback, and incentivization. We sought to evaluate the effect of the tool and a comprehensive implementation program on the rate of home discharge of ED patients with acute PE.

Methods: We studied 21 community EDs in an integrated delivery system from 01/2014 to 04/2015. We implemented the CDSS with active promotion 09/2014 at 10 EDs within a research network, while 11 non-network EDs served as controls. Using the EHR, we included all ED adults with objectively confirmed PE and health plan membership throughout the follow-up period to ensure accurate data capture. The primary outcome was the rate of home discharge from the ED. Secondary outcomes were 5d returns (ED or hospital) for complaints or diagnoses related to PE or its treatment and 30d all-cause mortality. We employed a difference-in-differences (D-in-Ds) analysis (8 months pre- and 8 months post-CDSS) to account for secular trends.

Results: Of the 1,729 adults included, 893 were at intervention sites and 836 at controls. Intervention patients were younger (median age, 64 vs 67 years; P<0.001) and more commonly female (51% vs 47%; P=0.05). The CDSS was activated in 66.6% of the eligible patients at intervention sites (311/467). With the intervention, home discharge rates rose from 8.0% to 12.4%, a 55.0% relative increase. In the D-in-Ds analysis, home discharge increased 5.3 percentage points (Table). Among the 155 patients discharged home, the rates of 5d returns (6.5%) and 30d mortality (0.7%) were not different between intervention and control patients (P>0.05 for D-in-Ds).

Conclusions: Active promotion of an electronic CDSS with an auto-populating PESI led to an increase in the percentage of patients with acute PE discharged home from the ED without an increase in return visits or short-term mortality.

Table. Rates of home discharge for ED patients pre- and post-implementation of an actively promoted CDSS

	Intervention Sites		Control Sites		
	Patients N	DC Home n (%)	Patients N	DC Home n (%)	Difference in Differences (95% CI)
Pre	426	34 (8.0)	414	33 (8.0)	
Post	467	58 (12.4)	422	30 (7.1)	
Absolute Percent Change (95% CI)		4.4 (0.7-8.2)*		-0.9 (-4.7-3.0)†	5.3 (-0.09-10.7)‡

CI, confidence interval. *P<0.05; †P=0.66; ‡P=0.054

137 Intermountain Risk Score Stratifies Pulmonary Embolism Severity Index to Better Predict Mortality Across All Classes

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Study Objectives: The Intermountain Risk Score (IMRS) is an easily computerized risk assessment tool based on results of common lab tests, age, and sex that has been shown to predict mortality related to pulmonary embolism (PE) and other conditions. We sought to determine if it could better