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Title: Developing hospital admission criteria for electronic pneumonia decision support

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Body: RATIONALE: Severity assessment tools that use objective data available in the electronic medical record to predict mortality include CURB-65, eCURB (an electronic version of CURB-65 using continuous variables), and A-DROP. We developed an electronic decision support tool for the emergency department that recommends admission for patients with 1) eCURB 30-day mortality estimate ≥ 5% 2) ≥3 severe community acquired pneumonia criteria (2007 IDSA/ATS), or 3) PaO2:FiO2 ratio ≥280. Our aim was to compare the tool's admission rule to the mortality predictors. METHODS: We identified pneumonia patients by ICD-9 code plus radiograph in 7 emergency departments Dec 1, 2009-Dec 1, 2010. We extracted initial clinical features, triage information and mortality from the electronic medical record; physician review identified multilobar infiltrates from radiograph reports. Simple agreement with hospital triage (outpatient versus inpatient) and mortality were compared. RESULTS: 57% of all patients were admitted (54% CAP and 76% HCAP) with a 30-day mortality of 5.5% (3.5% CAP, 17% HCAP). Table shows simple agreement with triage and mortality. While the actual admission rate was 57% with 13 outpatient deaths, the admission rule would have resulted in a 48% admission rate with 9 outpatient deaths.

% Agreement

	All (N=2394)		CAP (N=2060)		HCAP (N=334)	
	Triage %	Mortality %	Triage %	Mortality %	Triage %	Mortality %
Admit Rule	76	57	77	59	74	44
CURB-65 ≥ 2	70	58	71	59	68	50
A-DROP ≥ 1	78	48	78	49	75	40
A-DROP ≥ 2	63	78	64	80	56	68

CONCLUSION: The tool's admission rule agreed acceptably with observed triage and might lower admission rate with improved patient safety.