

Abstract P194 Figure 1 Percentage of early warning score within last observation set prior to death

Conclusion Our data suggests that neither scoring system provides effective monitoring in patients with respiratory disease, falling short on either sensitivity or specificity for predicting in-hospital death. As more data becomes available, modelling may allow more accurate prediction systems to be developed.

REFERENCE

1 Adam S, *et al.* Acutely ill adults in hospital: recognising and responding to deterioration. In *NICE guidelines*. Manchester: National Institute for Health and Care Excellence (NICE), 2007.

P195 CURB-65, REA-ICU OR SMART-COP: TIME TO RETHINK CAP SEVERITY SCORES?

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10.1136/thoraxjnl-2016-209333.338

Introduction and objectives An accurate assessment of severity of community acquired pneumonia (CAP) on admission is pivotal in early identification of patients who are critically ill. CURB-65 is recommended by BTS, but is a poor predictor of ICU admissions and often underestimates severity in young patients. We compared this with REA-ICU and SMART-COP in predicting severity and mortality.

Methods The notes of all adult patients admitted with a diagnosis of CAP in June 2016 were reviewed. Inclusion criteria consisted of consolidation on chest radiograph and raised inflammatory markers. Scores were calculated from results obtained within 24 hours of admission. The patients were followed up to ascertain length of stay, complications (effusions, empyema) antibiotic escalation, delivery of non-invasive ventilation (NIV), ICU escalation and death.

Results 43 patients identified with CAP were included in our analysis. 76.7% of patients were ≥65 years old. 24 hours after admission, 39.5% had ward-based ceilings of care in place and

27.9% had no escalation plan documented. 11.6% were still inpatients at the time of analysis. No patients were escalated to ICU.

CURB-65 was 0 to 1 in 23.3%, 2 in 18.6%, and ≥3 in 58.1%. In the low risk group, 50% developed complications, 10% required NIV and there were no inpatient deaths. Amongst the moderate and high risk patients, NIV was administered in 25% and 16% respectively, primarily as the patient’s ceiling of care. Inpatient deaths occurred in 12.5% of moderate risk and 16% of high risk patients.

As shown in Table 1, there was variation in REA-ICU and SMART-COP scores amongst moderate and high risk CURB-65 scores. A high risk CURB-65 score did not correlate with high REA-ICU and SMART-COP scores. We found that higher REA-ICU and SMART-COP scores did not correlate with increased mortality. However, length of stay and antibiotic escalation was increased with higher SMART-COP scores, particularly in those with low CURB-65 scores.

Abstract P195 Table 1 Comparison of CURB-65 scores with REA-ICU and SMART-COP scores

CURB-65 score	Percentage of CURB-65 patients with REA-ICU risk classes				Percentage of CURB-65 patients with SMART-COP scores			
	I (≤ 3)	II (4–6)	III (7–8)	IV (≥ 9)	0 to 2	3 to 4	5 to 6	≥ 7
0 to 1 (low risk)	50.0	50.0	0.0	0.0	40.0	60.0	0.0	0.0
2 (moderate risk)	25.0	62.5	0.0	12.5	12.5	62.5	25.0	0.0
≥3 (high risk)	28.0	44.0	20.0	8.0	36.0	28.0	32.0	4.0

Conclusions CURB-65 score correlates well with mortality, particularly in the elderly group of patients studied. REA-ICU and

SMART-COP are better at identifying younger, morbidly ill patients with misleadingly low CURB-65 scores requiring early decisions regarding escalation of care.

P196 PREDICTING ESCALATION TO INTENSIVE CARE FOR PATIENTS WITH PNEUMONIA WITH A NEW CLINICAL PREDICTION RULE: SNA³P

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10.1136/thoraxjnl-2016-209333.339

Introduction Many clinical prediction rules (CPRs) exist for community-acquired pneumonia (CAP), though few have been investigated to predict escalation to an intensive care unit (ICU). Furthermore, most include components (sometimes subjective) that do not allow the potential for electronic automation in clinical practice.

Methods A historical cohort study was performed at two UK adult acute medical units (2013–15). Inclusion was based on an ICD-10 coded diagnosis of pneumonia. Primary outcome was escalation to ICU. Exclusion criteria was: direct ICU admission from A and E, a stay <1 night, age <18 or ≥80 or frail elderly, neutropenia, HIV, malignancy and palliative care. Predictive performance of CURB-65 was compared to CRB-65, CURB, the National Early Warning Score (NEWS) and a modified SMART-COP (SART-CO, as imaging and ABGs were not available) using receiver operating characteristics (ROC) analysis. Multivariable logistic regression was also performed to investigate additional

predictors electronically available at admission (blood and physiological parameters).

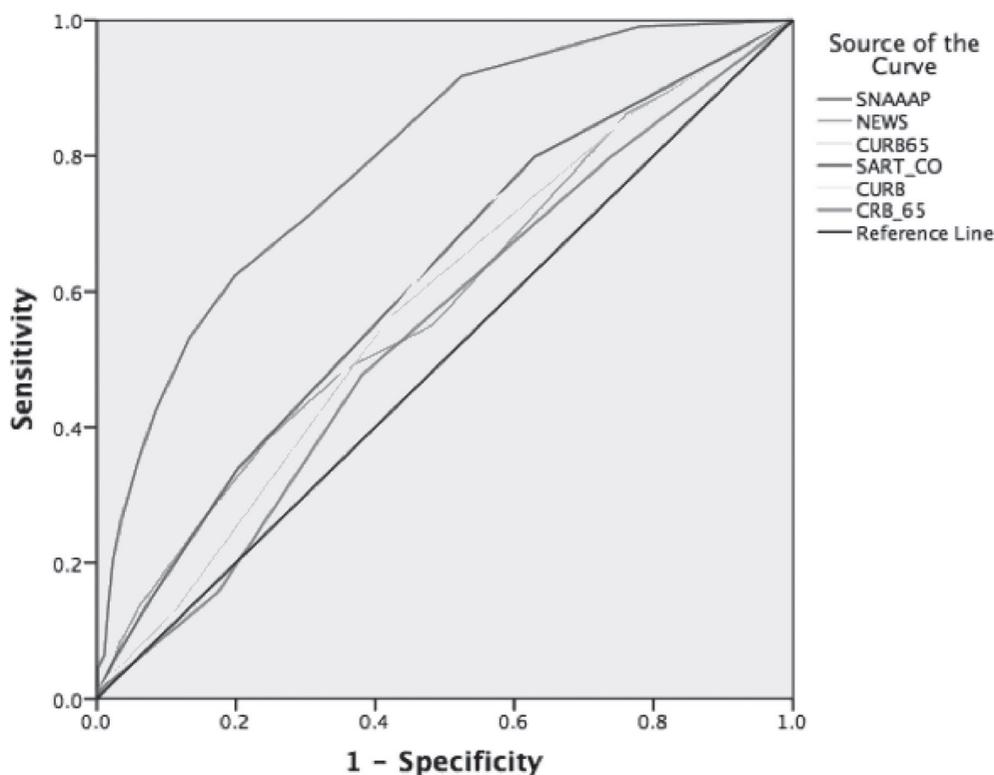
Results 1,305 of 24,706 medical admissions were included. 8.3% (n = 109) were escalated to ICU, with significantly increased inpatient mortality (31% vs 6.5%, p < 0.001). 54% of ICU patients had, or developed, AKI vs 11% if not escalated (p < 0.001). To predict escalation, AUCROCs for existing CPRs ranged from 0.54–0.61 (Figure). Using multivariable logistic regression a newly derived CPR – SNA³P - (including 6 components: Sodium, NEWS ≥ 7, Albumin, AST, AKI and Platelets, score range 0–20 points) demonstrated a statistically significant increase in discrimination (AUCROC 0.80, 95% CI: 0.75–0.84). At a cut-off of 2 points to predict ICU escalation, sensitivity was 92% (95% CI: 85–96%), specificity 48% (45–51), positive predictive value (PPV) 14% (11–16) and negative predictive value 98% (97–99); at 6 points sensitivity was 53% (43–63), specificity 87% (85–89), PPV 27% (21–33) and NPV 95% (94–96).

Conclusion Existing pneumonia CPRs, largely derived to predict mortality, have shortcomings when predicting those who require escalation to ICU. The newly derived rule SNA³P, if externally validated could be incorporated into an electronic clinical decision support system to provide automatic objective assessment and evidence of risk at point-of-care for those who may be considered for escalation.

P197 MEDIUM TERM IMPACTS OF ECMO ON ADULT SURVIVORS

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10.1136/thoraxjnl-2016-209333.340



Abstract P196 Figure 1 AUC_{ROC} for escalation to ICU. CURB-65 0.59 (95% CI: 0.52–0.63), CRB-65 0.54 (0.49–0.60), CURB 0.59 (0.54–0.65), NEWS 0.58 (0.53–0.64), SART-CO 0.61 (0.56–0.67), SNAAP 0.80 (0.75–0.84).