Method and Design We performed a secondary analysis of a patient cohort (n=312) enrolled in the Charité University hospital ED (Berlin, Germany) with suspected infection and at least one vital sign alteration. The expression of 29-host mRNAs in PAXgene-stabilized whole blood was quantified using NanoString nCounter® SPRINT. The proprietary machine learning classifier IMX-SEV-3 was applied to calculate a score that falls into pre-defined interpretation bands: low/moderate/high severity. NEWS2 and qSOFA were documented on admission and combined with the classifier results to analyze the incidence of two clinical endpoints: 'need for critical care' (composite of need for ventilation, dialysis, and/or vasopressors) within 7d and '28d mortality'.

Results and Conclusion Among enrolled patients, 22 (7.1%) died and 66 (21.1%) required ICU-level care. Of patients with a high NEWS2 (≥5 points; n=184), there was a stepwise increase in mortality among the low (0%; n=0/47), medium (10.1%; n=12/119) and high (44.4% n=8/18) IMX-SEV-3 severity subgroups. A similar stratification was achieved across the low (17%), moderate (31%), and high (61%) IMX-SEV-3 subgroups for prediction of critical care. More granular risk stratification could also be confirmed when using IMX-SEV-3 in combination with high qSOFA (≥2 points; n=76): 0/10.6/50% mortality and 23.5/40.4/66% need for critical care in the low/moderate/high subgroups, respectively.

In summary, the combined use of immune-based IMX-SEV-3 results for ED patients with high clinical scores allows improved prediction of mortality and the need for critical care.

1473   **IN PATIENTS WITH CHEST PAIN SUSPICIOUS FOR ACS, IS ARRIVAL BY EMERGENCY AMBULANCE ASSOCIATED WITH INCREASED LIKELIHOOD OF MYOCARDIAL INFARCTION?**

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Aims, Objectives and Background Patients commonly present to the Emergency Department (ED) with chest pain suspicious of an acute coronary syndrome (ACS). Clinical features and historical risk factors for ACS are assimilated with electrocardiographic (ECG) findings and cardiac biomarkers to assess risk, determine diagnosis and decide subsequent disposition. Many such patients arrive by ambulance but whether the mode of arrival is associated with an increased likelihood of myocardial infarction is unknown.

Method and Design Adult patients (≥16 years) presenting to Aberdeen Royal Infirmary ED with chest pain suspicious of ACS and non-diagnostic ECGs were identified from two prospectively collected cohorts. Patient demographics, known ACS risk factors at presentation, cardiac biomarker results and clinical outcomes up to 30 days were recorded. Data sets were retrospectively interrogated electronically to identify the mode of ED arrival: by ambulance, or other. The independently adjudicated primary outcome was the development of type 1 or 4 myocardial infarction or cardiac death at 30 days.

Logistic regression was used to determine the association between mode of arrival and the primary outcome after adjusting for other confounds. The strength of association was reported as odds ratio (OR) and adjusted odds ratio (aOR) and its 95% confidence interval (CI).

Statistical analysis was performed using SPSS v27. A p-value <0.05 was considered to be statistically significant.

Results and Conclusion Of 1606 patients [mean age 62 (SD 16) years, 45% women], 1246 (78%) arrived via ambulance and 188 (12%) reached the primary outcome.

After adjusting for known confounders, a statistically significant association (aOR 1.72; 95% CI 1.11 to 2.66) between ED arrival by ambulance and the development of type 1 or type 4 myocardial infarction or cardiac death at 30 days was demonstrated (table 1).

In our cohort of patients with chest pain suspicious of ACS, ED arrival by ambulance correlates strongly with the development of myocardial infarction at 30 days.

Abstract 1473 Table 1 Relationship of risk factors to the development of the primary outcome expressed using a Chi-square test and calculation of crude and adjusted Odds Ratios (OR) with 95% confidence intervals (CI). A P-value of <0.05 was considered statistically significant. The primary outcome was the development of a Type 1 or Type 4 myocardial infarction or cardiac death at 30 days

Patient Characteristics		Total (n=1606) Number	%	Primary Endpoint (n=188) Number	%	No Primary Endpoint (n=1418) Number	%	Chi-Square test p-value	Crude Odds Ratio & 95% CI	Adjusted Odds Ratio & 95% CI
Mode of transport	Ambulance	1246	77.6	162	13.0	1084	87.0	0.03	1.92 (1.25 to 2.96)	1.72 (1.11 to 2.66)
	Other	360	22.4	26	7.2	334	92.8	-	-	-
Diabetes	Yes	312	19.4	54	17.3	258	82.7	0.01	1.81 (1.29 to 2.26)	1.39 (0.97 to 1.99)
	No	1294	80.6	134	10.4	1160	89.6	-	-	-
Hypertension	Yes	770	48.0	123	16.0	647	84.0	<0.01	2.25 (1.64 to 3.10)	1.81 (1.29 to 2.56)
	No	835	52.0	65	7.8	770	92.2	-	-	-
Hyperlipidaemia	Yes	525	32.7	90	17.1	435	82.9	<0.01	2.08 (1.53 to 2.82)	1.589 (1.14 to 2.21)
	No	1081	67.3	98	9.1	983	91.5	-	-	-
Smoking status	Yes	391	24.3	42	10.7	349	89.3	0.495	0.88 (0.61 to 1.27)	1.06 (0.73 to 1.55)
	No	1215	75.7	146	12.0	1069	88.0	-	-	-