Validating the Use of the RPM Score for Triage of Injured Patients in a Current Trauma Population

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BACKGROUND

The RPM Score (also known as the Sacco Triage Method) is a mathematical formula that attempts to predict mortality in trauma patients using physiologic parameters of respiratory rate, pulse rate, and motor response.

OBJECTIVE

To validate the RPM score as a predictor of mortality in a large, current cohort of US trauma patients (of various etiologies).

Sacco Score	R + P + M				
1 min (60 seconds)	0	1	2	3	4
R	0	1-9	36+	25-35	10-24
P	0	1-40	41-60	121+	61-120
M	No Response	Extension/ Flexion	Withdraws	Localizes	Obeys Commands

METHODS

Design & Population
- Retrospective Analysis
- ESO Data Collaborative Research Dataset
- Jan 1, 2022, to Dec 31, 2022

Inclusion Criteria
- 911 response
- Patients of all ages
- Categorized as Trauma

Outcome Measures
- Hospital mortality
- Hospital length of stay

Analysis
- RPM Score compared to hospital mortality
- RPM Score analyzed amongst trauma categories

RESULTS

Of 11, 082, 188 records in the ESO 2022 Dataset, 219, 495 had complete RPM data and associated hospital outcome data.

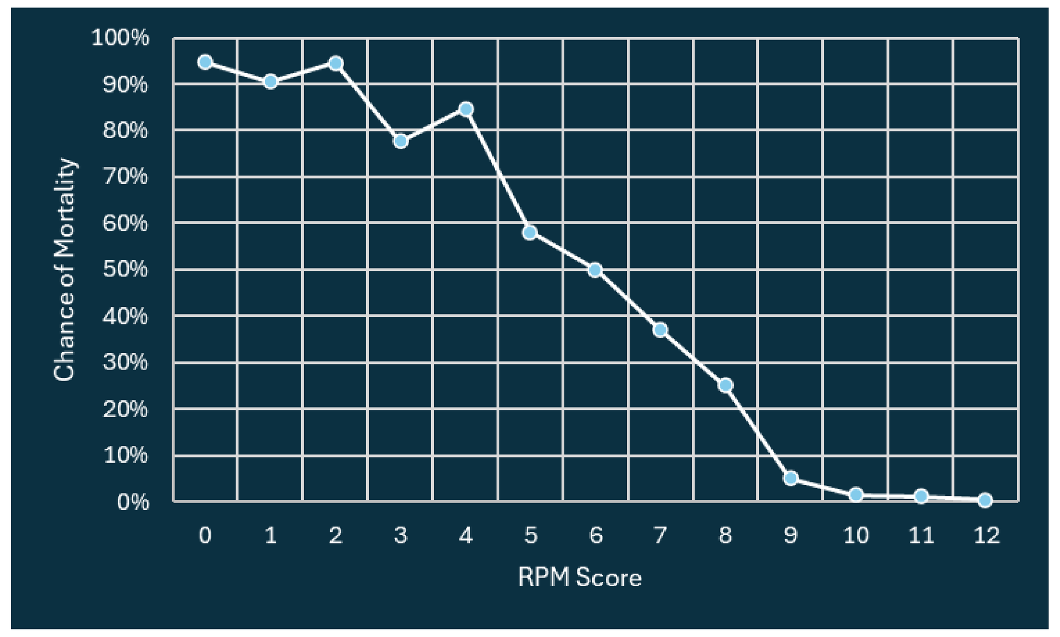

Figure 1. RPM Score compared to hospital mortality. n= 219,495

RPM Score	Chance of Mortality
0	94.8%
1	90.5%
2	94.6%
3	77.6%
4	84.7%
5	58.1%
6	50.0%
7	37.1%
8	25.1%
9	5.1%
10	1.5%
11	1.1%
12	0.4%

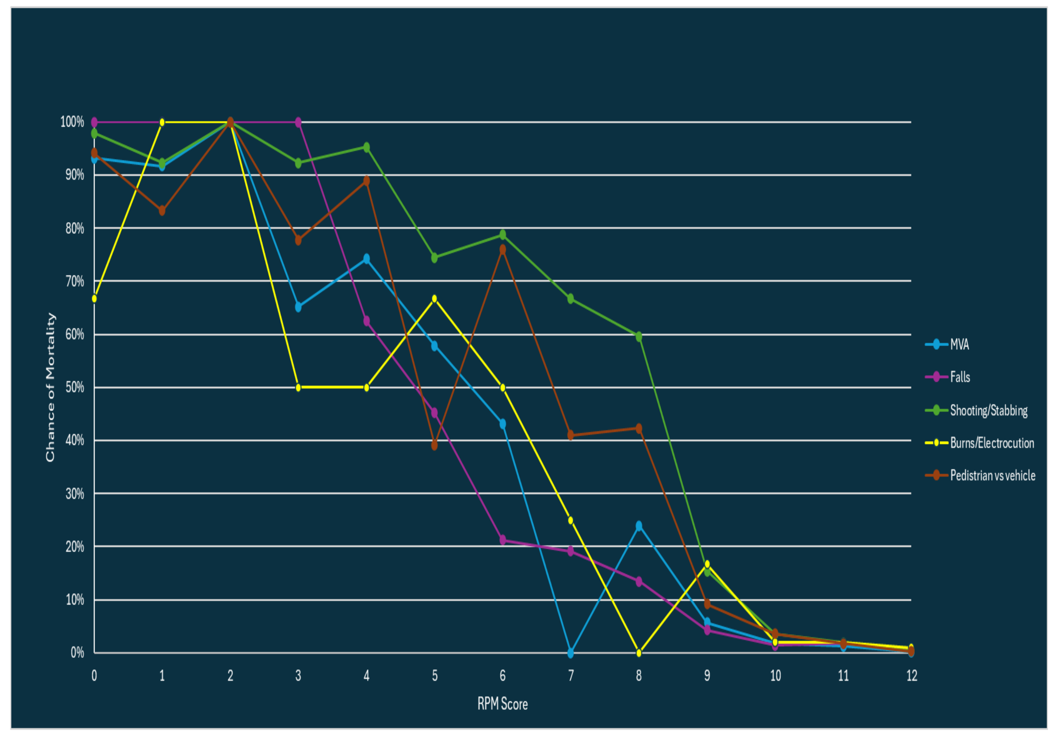

Figure 2. RPM Score compared to Hospital Mortality, analyzed by Injury Complex

Injury Complex	Number of Patients
MVA	55,454
Falls	108,087
Shooting/ Stabbing	6,857
Burns/ Electrocution	1,287
Pedestrian vs vehicle	6,091

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Conclusions

- The 12-point RPM score is strongly associated with mortality in trauma patients.
- The strong association is maintained over various blunt and penetrating trauma etiologies.
- RPM Score > 9 is associated with very low rate of mortality.

Discussion

The RPM Score may be useful as a triage tool in Mass Casualty Incidents and in daily decision-making for trauma patient destination and trauma team activation.

LIMITATIONS

These RPM scores were calculated from PCR data and usefulness of RPM requires real-time calculation in the field

QR Code

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