A comparison of trauma scoring systems for trauma-related injuries presenting to a district-level urban public hospital in Western Cape, South Africa

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Background: Trauma is a major public health problem and various trauma scores have been developed to objectively estimate injury severity in order to predict mortality. In South Africa, the most appropriate trauma score to be used at district level healthcare facilities still needs to be determined.

Objective: To compare the performance of four trauma scores (Injury Severity Score (ISS), Revised Trauma Score (RTS), Kampala Trauma Score (KTS), and Trauma Score – Injury Severity Score (TRISS)) in predicting mortality in trauma patients managed at a district-level hospital in Cape Town, South Africa.

Methods: All trauma patients presenting to the resuscitation unit of Khayelitsha Hospital over a six-month period were reviewed. The four scores were the predicted variables and all-cause in-hospital mortality the outcome variable. An empirical diagnostic cut of point using Receiver Operating Characteristics (ROC) curves to maximize the product of sensitivity and specificity for each trauma score was determined. Univariate logistic regression was used to determine significant associations and predictive values.

Results: Overall, 868 of 918 (94.6%) trauma patients were analysed (50 excluded due to missing data). Participants were predominantly young males (mean age 28.3 years, males n=726, 83.6%) and most suffered from penetrating injuries (n=492, 56.6%). The mortality rate was 5.2%. TRISS was the best predictor of mortality (area under the ROC curve (AUC) 0.93, sensitivity 90%, specificity 87%), although not statistically significant due to overlapping confidence intervals.

Conclusion: The ISS, RTS, KTS and TRISS performed equivocally, although the low mortality rate limits the validity of the results.