



# Choice of Trauma Injury Scoring Determine the Outcome of Traumatic Penetrating Injury in regional Hospital of Malaysia from 2018-2023

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## Introduction

Penetrating abdominal trauma is a prevalent issue observed in numerous countries, including Malaysia. Penetrating trauma can be affecting various anatomical strutures which encompasses a diverse range of injuries especially. Total 252 consecutive cases of penetrating trauma out of total 5474 of trauma cases in adult age group admitted in casualty of Hospital Sultanah Aminah Johor Bahru Malaysia from January 2018 to mid August 2023.

Establishing a trauma scoring system is a crucial step in identifying patients at a heightened risk of mortality, facilitating accurate triage for severely injured individuals.

This study aims to demonstrate the significance of these scoring systems and their correlation with morbidity and mortality in patients experiencing traumatic penetrating injuries.

## Epidemiology

Variable	Category	Cases	(%)
AGE	13-30	110	43.6%
	31-50	105	41.6%
	51-70	28	11.1%
	>71	9	3.6%
SEX	MALE	240	95.2%
	FEMALE	12	4.8%
Nationality	MALAYSIAN	167	66.3%
	NON-MALAYSIAN	85	33.7%
Mechanism	AGRICULTURE TOOL	4	1.6%
	GUNSHOT	4	1.6%
	KNIFE	168	66.7%
	INDUSTRIAL TOOL	21	8.3%
	OTHERS	55	21.8%
Outcome	ALIVE	246	97.6%
	DEATH	6	2.4%
Operation	YES	153	60.7%
	NO	99	19.3%
Type of Operation	DIAGNOSTIC LAPAROSCOPY	20	7.9%
	LAPAROTOMY AND PROCEED	44	17.5%
	LOCALIZED WOUND DEBRIDEMENT/ EXPLORATION	72	28.6%
	VASCULAR RELATED SURGERY	16	6.3%
	THORACOTOMY	1	0.4%

Table (2) Epidermiology and characteristic of penetrating trauma injury from Jan 2018 to Mid August 2023.

## Type of Operation

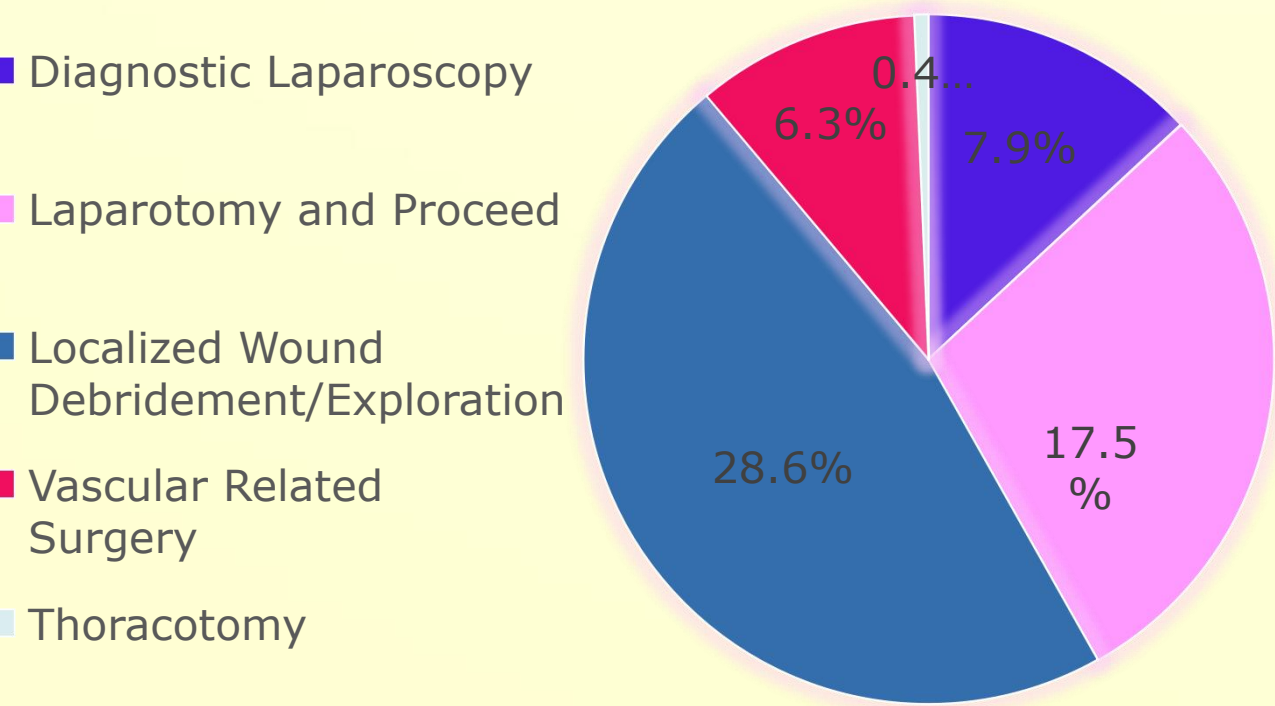
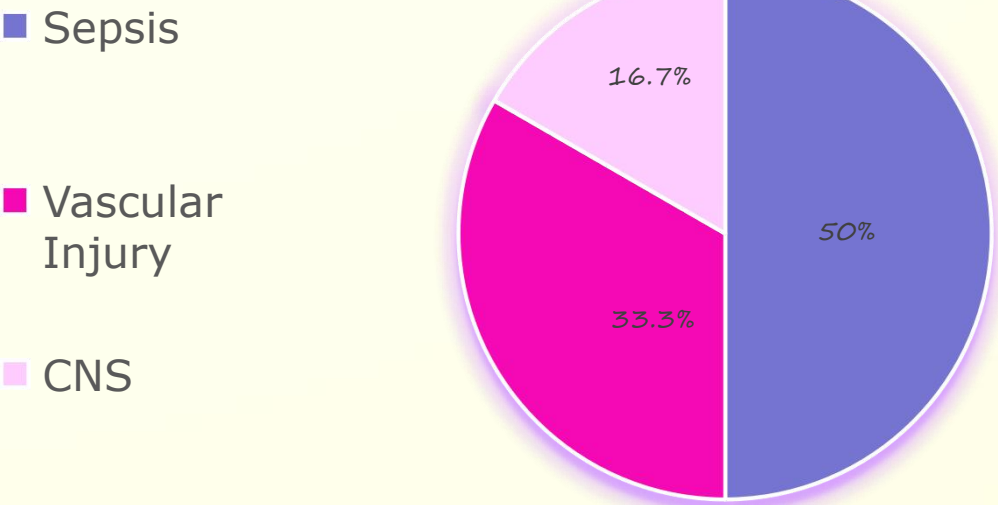


Figure (2) Types of operation for last 5 years in penetrating injury

## Mortality Trend

The overall mortality rate was 2.38% with 6 deaths out of 252 patients. 3(50%) patients died due to sepsis , 2 death due to bleeding from vascular injury (33.3%) (one is right intrajugular vein injury and another one is right ventricle and diaphragm injury) and 1 death from CNS death (16.7%) with severe head injury complicated with multiple intracranial bleed.

## Cause of Death



## Methods

There are few scoring system available currently such as RTS(Revised trauma score) , ISS(Injury severity score), NISS (New Injury severity score) and Trauma-related injury severity score (TRISS). In this study is to show how significance of these scoring correlates well with morbidity and mortality.

NISS score mainly uses anatomical grading to determine injury severity and predict death. Relative difference to NISS, the RTS, and TRISS is a combined anatomic and physiologic scoring system. It has shown to be a good prediction score with higher sensitivity and specificity compared to other scoring.

TRISS determines the probability of survival (Ps) of a patient from the ISS and RTS using the following formulae:

$$Ps = \frac{1}{1 + e^{-b}}$$

Where 'b' is calculated from:  
$$b = b_0 + b_1 (RTS) + b_2 (ISS) + b_3 (Age\ Index)$$

## Results

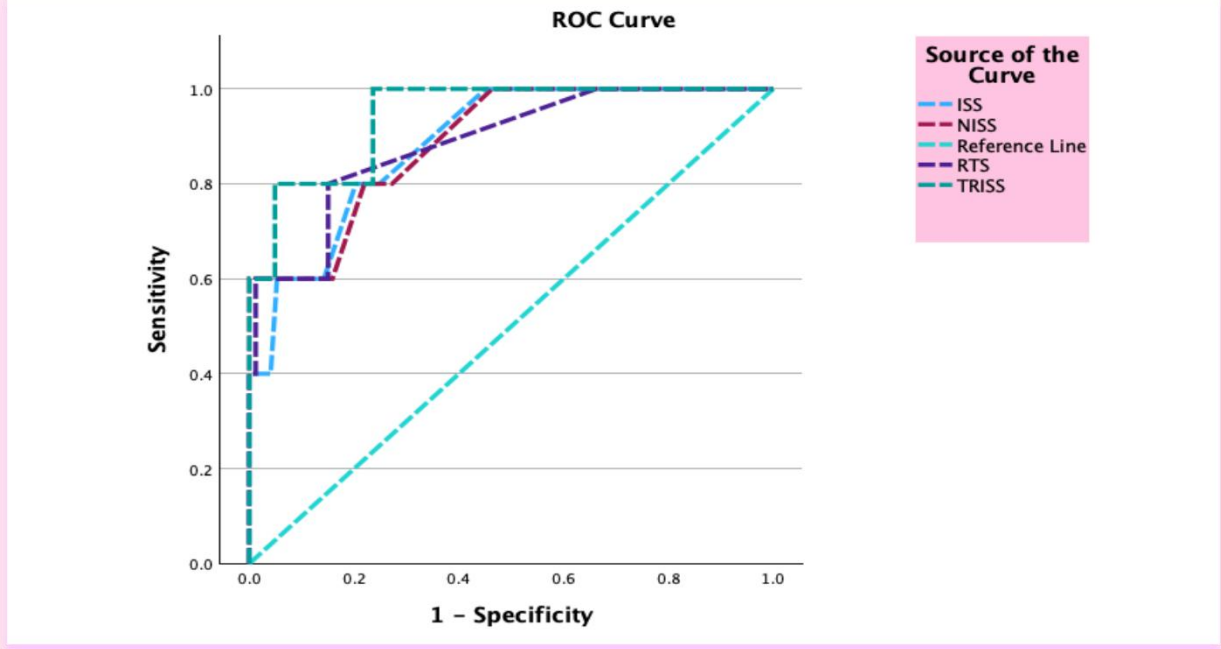


Figure (3) Receiver operating characteristic (ROC) curves of (NISS), (RTS), (TRISS) in predicting trauma mortality in the study population.

## Conclusion

While numerous trauma severity scoring systems exist, TRISS stands out as particularly applicable for assessing penetrating trauma injuries and predicting morbidity and mortality percentages. Surgeons and clinicians are encouraged to include TRISS in their evaluation of injury severity and mortality risk. The integration of these scores into assessments aids physicians in determining the optimal course of action for patient management.

## References

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