

# EVALUATING PROFICIENCY IN TRAUMA SURGERY: A NATIONWIDE SURVEY OF TRAINEES AND SURGEONS



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## INTRODUCTION

The limited exposure of Malaysian surgical trainees and junior general surgeons to trauma surgery poses multifaceted challenges within surgical education and healthcare delivery. With the nascent state of the Trauma Surgery subspecialty and a scarcity of trauma surgeons, addressing deficiencies in trauma surgery training is imperative. This study assesses the confidence levels of individuals in general emergency trauma surgery and gauges the interest of trainees and junior general surgeons in pursuing a career in trauma surgery.

## CONCLUSION

The study highlights the pressing need for comprehensive trauma surgery training in Malaysia, emphasizing the establishment of dedicated training pathways, curriculum enhancements, and increased engagement in trauma courses. Trainees' enthusiasm can be harnessed to cultivate competent trauma surgeons, and continuous professional development is crucial for sustaining and enhancing trauma surgery competencies.

## METHODS

Data were collected through an online survey of surgical trainees and experienced surgeons. Data included demographics, training levels, and participation in trauma-related courses. Self-reported competencies were assessed using a 1-10 confidence rating scale.

Table 1: The 1-10 competency rating scale

Score	Competency
1	Not competent
2-4	Slightly competent
5-7	Quite competent
8-10	Highly competent

Table 2: Respondent demographics

	Total n (%)
<b>Gender (n=169)</b>	
Male	122 (72.2%)
Female	47 (27.8%)
<b>Years since completion of General Surgery Postgraduate Training (GSPT)</b>	
In General Surgery Postgraduate Training (GSPT) residency	25 (14.8%)
<5	96 (56.8%)
5-9	17 (10.1%)
10-14	13 (7.7%)
15-20	7 (4.1%)
>20	11 (6.5%)
<b>Stage of training</b>	
In General Surgery Postgraduate Training (GSPT) (Trainees)	25 (14.8%)
Surgeon	144 (85.2%)
- General Surgeon	109 (75.7%)
- Sub-speciality Surgeon	35 (24.3%)
<b>Sub-speciality (n=35)</b>	
Upper GI / Bariatric	3 (8.6%)
Colorectal	6 (17.1%)
Hepatobiliary	7 (20.0%)
Breast / Endocrine	8 (22.9%)
Vascular	4 (11.4%)
Thoracic	2 (5.7%)
Trauma	5 (14.3%)
<b>Place of work</b>	
State Hospital (Major Tertiary Hospital)	77 (45.6%)
Major Specialist Hospital	24 (14.2%)
Minor Specialist Hospital	47 (27.8%)
University Hospital	19 (11.2%)
Special Institution (Oncology, Military)	2 (1.2%)

Table 3: Trauma courses participation

	Trainee n (%)	Surgeon n (%)	Total n (%)
Advanced Trauma Life Support (ATLS)	18 (72.0%)	74 (51.4%)	92 (54.4%)
Malaysia Trauma Surgery Skills Course (TSSC)	4 (16.0%)	23 (16.0%)	27 (16.0%)
Definitive Surgical Trauma Care (DSTC) course	1 (4.0%)	17 (11.8%)	18 (10.7%)
Advanced Trauma Operative Management (ATOM) course	1 (4.0%)	1 (0.7%)	2 (1.2%)
Advanced Surgical Skills for Exposure in Trauma (ASSET) course	1 (4.0%)	0	1 (0.6%)
Other trauma courses (Conferences, Workshops, Webinars)	1 (4.0%)	26 (18.1%)	27 (16.0%)
None	5 (20.0%)	35 (24.3%)	40 (23.7%)

Table 4: Self-reported competency in the surgical management of an unstable trauma patient

	n (%)				Mean competency score (SD)
	Not competent	Slightly competent	Quite competent	Highly competent	
1 Performing a thoracotomy/clamshell thoracotomy	44 (26.0%)	61 (36.1%)*	41 (24.2%)	23 (13.7%)	3.9 (2.7)
2 Managing a lung injury	44 (26.0%)	66 (39.0%)*	39 (23.2%)	20 (11.8%)	3.8 (2.6)
3 Performing a median sternotomy	69 (40.8%)*	61 (36.0%)	24 (14.2%)	15 (8.9%)	3.1 (2.5)
4 Suturing the heart/cardiac repair for trauma	78 (46.2%)*	58 (34.3%)	22 (13.1%)	11 (6.6%)	2.8 (2.4)
5 Performing a trauma laparotomy	2 (1.2%)	7 (4.2%)	38 (22.4%)	122 (72.2%)*	8.1 (2.0)**
6 Packing the abdomen for major traumatic haemorrhage	2 (1.2%)	7 (4.2%)	41 (24.3%)	119 (70.5%)*	8.0 (2.0)**
7 Managing a small-bowel injury for trauma	2 (1.2%)	5 (3.0%)	21 (12.5%)	141 (83.5%)*	8.7 (1.8)**
8 Managing a large-bowel injury for trauma	2 (1.2%)	6 (3.6%)	25 (14.9%)	136 (80.5%)*	8.6 (1.9)**
9 Managing a rectal injury for trauma	7 (4.1%)	9 (5.4%)	47 (27.8%)	106 (62.8%)*	7.7 (2.3)**
10 Managing a gastric injury for trauma	5 (3.0%)	12 (7.1%)	53 (31.4%)	99 (58.6%)*	7.6 (2.3)**
11 Performing a splenectomy	4 (2.4%)	6 (3.6%)	24 (14.2%)	135 (79.8%)*	8.5 (2.0)**
12 Packing an injured liver	5 (3.0%)	6 (3.6%)	49 (28.9%)	109 (64.5%)*	7.8 (2.1)**
13 Extraperitoneal pelvic packing via laparotomy	8 (4.7%)	20 (11.8%)	57 (33.7%)	84 (49.8%)*	6.9 (2.5)**
14 Extraperitoneal pelvic packing via pelvis only	15 (8.9%)	34 (20.0%)	56 (33.2%)	64 (37.8%)*	6.1 (2.7)**
15 Operative management of pancreatic injury	24 (14.2%)	55 (32.5%)	59 (34.9%)*	31 (18.4%)	4.8 (2.6)
16 Tail of pancreas resection for trauma	20 (11.8%)	48 (28.4%)	47 (27.9%)	54 (32.0%)*	5.5 (2.9)**
17 Head of pancreas resection for trauma	49 (29.0%)	65 (38.5%)*	41 (24.3%)	14 (8.4%)	3.6 (2.5)
18 Managing a duodenal injury for trauma	19 (11.2%)	48 (28.4%)	70 (41.4%)*	32 (18.9%)	5.1 (2.5)**
19 Managing a combined pancreatico-duodenal injury for trauma	50 (29.6%)	60 (35.5%)*	45 (26.7%)	14 (8.3%)	3.6 (2.5)
20 Retroperitoneal exposure for trauma	24 (14.2%)	45 (26.6%)	67 (39.6%)*	33 (19.5%)	5.0 (2.7)**
21 Performing a trauma nephrectomy	19 (11.2%)	41 (24.3%)	68 (40.2%)*	41 (24.3%)	5.5 (2.8)**
22 Performing repair of an injured kidney (e.g. mesh repair)	54 (32.0%)	63 (37.3%)*	35 (20.7%)	17 (10.1%)	3.6 (2.6)
23 Performing repair of an injured bladder	10 (5.9%)	11 (6.6%)	52 (30.8%)	96 (56.9%)*	7.4 (2.5)**
24 Operative management of an infrarenal IVC injury	56 (33.1%)*	48 (28.4%)	44 (26.0%)	21 (12.5%)	3.7 (2.7)
25 Operative management of a retrohepatic IVC injury	81 (47.9%)*	51 (30.2%)	26 (15.3%)	15 (8.8%)	2.9 (2.4)
26 Operative management of a suprarenal aortic injury	81 (47.9%)*	60 (35.4%)	17 (10.2%)	11 (6.5%)	2.7 (2.3)
27 Operative management of an infrarenal aortic injury	70 (41.4%)*	62 (36.7%)	21 (12.4%)	16 (9.5%)	3.1 (2.5)
28 Operative management of an upper/lower extremities vascular injury	22 (13.0%)	54 (31.9%)	59 (35.0%)*	34 (20.1%)	4.9 (2.7)
29 Performing a vascular shunt for arterial trauma	43 (25.4%)	51 (30.1%)	52 (30.8%)*	23 (13.6%)	4.3 (2.7)
30 Operative management of a neck injury	26 (15.4%)	60 (35.4%)*	58 (34.4%)	25 (14.8%)	4.5 (2.6)
31 Operative management of a tracheal injury	31 (18.3%)	66 (39.0%)*	47 (27.8%)	25 (14.8%)	4.3 (2.6)
32 Managing a multi-cavity injuries that require surgical intervention	21 (12.4%)	53 (31.4%)	64 (37.8%)*	31 (18.4%)	4.8 (2.6)

\*Highest percentage allocation; \*\*Mean score rated as quite competent or above